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PRELIMINARY ASSESSMENT/ VISUAL SITE INSPECTION

RELIABLE METAL FINISHING
ZION, ILLINOIS
ILD 122 328 677

FINAL REPORT

Prepared for

U.S. ENVIRONMENTAL PROTECTION AGENCY
Office of Waste Programs Enforcement
Washington, DC 20460

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EXECUTIVE SUMMARY

PRC Environmental Management, Inc. (PRC), performed a preliminary assessment and visual site inspection (PA/VSI) to identify and assess the existence and likelihood of releases from solid waste management units (SWMU) and other areas of concern (AOC) at the Reliable Metal Finishing (RMF) facility in Z on, Lake County, Illinois. This summary highlights the results of the PA/VSI and the potential for releases of hazardous wastes or hazardous constituents from SWMUs and AOCs identified. In addition, a completed U.S. Environmental Protection Agency (EPA) Preliminary Assessment Form (EPA Form 2070-12) is included in Appendix A to assist in prioritizing RCRA facilities for corrective action.

The RMF facility electropolishes stainless steel parts such as oven racks and animal cages. The facility generates and manages the following waste streams: process waste (D002 and D007), spent rinse water (D002 and D007), and dike water (D002 and D007). In the past, the facility also generated floor cleanup waste (D002) and nonhazardous excavated soil. The facility has operated at its current location since June 1985. The facility occupies just under 0.5 acre in a residential, commercial, and industrial mixed-use area and employs three people. According to recent Illinois Environmental Protection Agency (IEPA) correspondence, the facility's current regulatory status is that of a generator subject to reduced requirements. Earlier IEPA correspondence also identifies the facility as a conditionally exempt small-quantity generator, a small-quantity generator, and a fully-regulated generator. In the past, the facility also stored waste on site for greater than 90 days.

The RMF facility and surrounding land is owned by Ted Victor. RMF has operated at the facility since 1985. According to a facility representative, the facility was formerly used as a garage where school buses were repaired. No further information regarding past operations was available. The facility submitted a closure plan for the Former Container Storage Area (CSA) (SWMU 1) to IEPA in November 1990. The closure plan was disapproved by IEPA in February 1991. RMF's contractor is currently addressing IEPA comments on the original closure plan.

The PA/VSI identified the following 10 SWMUs and three AOCs at the facility:

Solid Waste Management Units

1. Former Container Storage Area (CSA)
2. Former Wastewater Discharge Area
3. Former Pit
4. Evaporator
5. Spent Rinse Water Satellite Accumulation Area (SAA)
6. Process Waste SAA
7. Former Waste Pile
8. Excavated Soil Pile
9. Containerized Soil Storage Area
10. Former Heated Tank

Areas of Concern

1. Diked Process Area
2. Seepage Area in the Northeast Corner
3. Former Stained Soil Area

The potential for a release to groundwater is moderate to high from the Former Pit (SWMU 3) and the Former Stained Soil Area (AOC 3). Groundwater samples collected at SWMU 3 were upgradient of the unit; however, it is possible that contamination migrated downgradient of the unit. A 1993 investigation report compiled by IEPA identified nickel in the surface soils at AOC 3. No records exist of the contamination at AOC 3 ever being remediated. Hazardous constituents from this area could migrate to groundwater. The potential for a release to groundwater is moderate from the Former Wastewater Discharge Area (SWMU 2), the Former Waste Pile (SWMU 7), and the Seepage Area in the Northeast Corner (AOC 2). It is likely that chromium is present in soils at SWMU 2; this hazardous constituent could migrate to groundwater. SWMU 7 was relatively small but was located directly on soil. It is also possible that the dike water from AOC 2 migrated to groundwater. The potential for a release to groundwater is low to moderate from the Spent Rinse Water SAA (SWMU 5), the Process Waste SAA (SWMU 6), the Excavated Soil Pile (SWMU 8), and the Diked Process Area (AOC 1). The integrity of the concrete floor in the Diked Process Area (AOC 1), containing SWMUs 5 and 6, is unknown and portions of concrete surface are eroded. If the soil at the Excavated Soil Pile (SWMU 8) is nonhazardous, it could still contain hazardous constituents which could migrate to groundwater. The potential for a release to groundwater is low from SWMUs 1, 4, 9, and 10 because the units are located indoors on concrete.

The potential for a release to surface water is low to moderate from SWMUs 2, 7, and 8 and AOCs 2 and 3. SWMUs 7 and 8 both consist of uncovered piles without secondary containment where migration of hazardous constituents due to runoff could easily occur. Although SWMU 7 has been removed, soils underlying the Former Waste Pile may be contaminated. It is also not known if all of the contaminated soil from AOC 2 was removed. The other two areas have documented soil contamination. The contaminated surface water may reach surface water through surface runoff. The potential for a release to surface water is low from SWMUs 1, 3, 4, 5, 6, 9, and 10 and AOC 1 because the units are located indoors.

The potential for a release to air is low to moderate from SWMUs 4 and 8 and AOC 1. The Evaporator (SWMU 4) vents the evaporated liquid through the roof without an air permit. SWMU 8 is located outdoors and uncovered. Because of the acidic nature of the dike water at AOC 1, hazardous constituents may migrate to air. The potential for a release to air is low for SWMUs 1, 2, 3, 5, 6, 7, 9, and 10 and AOCs 2 and 3. SWMUs 1, 3, 5, 6, 9, and 10 are located indoors. Ponded liquid samples collected at SWMU 2 indicate a pH of 1 and a chromium content of 124 mg/L. However, the material formerly managed in SWMU 2 was not believed to be volatile. Hazardous constituents at AOC 2, if present, would be below the ground surface. The waste at SWMU 7 has been removed. AOC 3 does not manage volatile waste.

An unremediated release to on-site soils has occurred at SWMU 2, SWMU 3, and AOC 3. A soil sample collected at SWMU 2 in February 1991 and analyzed for extraction procedure (EP) toxic chromium indicated chromium present at 0.023 mg/L. Total chromium content was not determined. Soil samples collected from under SWMU 3 in February 1990 contained chromium at levels of 47 and 90 parts per million (ppm). Soil samples collected in 1992 at AOC 3 indicate that nickel is present at a toxicity characteristic leaching procedure (TCLP) concentration of 6.691 mg/L in the area. The potential for a release to on-site soils is moderate from SWUM 7 and AOC 2. SWMU 7 managed hazardous waste and was located directly on soil. Although the unit has been removed, contaminated soil may still remain. It is also not known if all of the contaminated soil was removed from AOC 2. The potential for a release to on-site soils is low to moderate at SWMUs 5, 6, and 8 and AOC 1. The integrity of the concrete floor at SWMUs 5 and 6 and AOC 1 is unknown and portions of the concrete surface are eroded. The SWMU 8 manages excavated soil claimed to be nonhazardous by a facility representative and is located directly on soil. If the excavated soil is not

nonhazardous, it could still contain hazardous constituents which may have migrated to on-site soils from this area. The potential for a release to on-site soils is low from SWMUs 1, 4, 9, and 10 because the units are located indoors on concrete.

Groundwater is not extensively used in the area, except as drinking water for a few surrounding residences. The nearest downgradient private well is just over 0.5 mile from the facility and used for drinking water. The Kellogg Ravine is located about 800 feet south of the facility and is used to collect surface runoff. Lake Michigan is located just over 3 miles east of the facility and is used for drinking water, industrial, and recreational purposes. The nearest residential area is located between 0.25 and 0.5 mile from the facility. A palustrine, emergent, seasonally flooded wetland greater than 2 acres in size is located within 0.25 mile northwest of the facility. The facility property is not fenced; therefore access to open areas is unlimited.

PRC recommends that the facility close the Former CSA (SWMU 1), the Former Wastewater Discharge Area (SWMU 2), the Former Pit (SWMU 3), the Former Waste Pile (SWMU 7), and the Former Heated Tank (SWMU 10) in accordance with an IEPA-approved closure plan. PRC also recommends that the facility apply for an air permit as requested by IEPA to cover operations at the Evaporator (SWMU 4). PRC recommends that the facility verify the structural integrity of the concrete floor and dike at the Diked Process Area (AOC 1), which also houses the Former Pit (SWMU 3), the Evaporator (SWMU 4), the Spent Rinse Water SAA (SWMU 5), and the Process Waste SAA (SWMU 6). PRC also recommends that the facility install RCRA groundwater monitoring wells downgradient of the entire facility and conduct groundwater sampling to determine if hazardous constituents have migrated from the facility, as requested by IEPA. PRC recommends that the facility provide documentation stating that the soil in the Containerized Soil Storage Area (SWMU 9) and the Excavated Soil Pile (SWMU 8) is nonhazardous. PRC recommends that the facility improve general waste management practices at AOC 1. PRC recommends that the facility remove contaminated soil at the Former Stained Soil Area (AOC 3) and conduct soil sampling at the Seepage Area in the Northeast Corner (AOC 2) and AOC 3 to ensure that all contamination is removed.

1.0 INTRODUCTION

PRC Environmental Management, Inc. (PRC), received Work Assignment No. C05087 from the U.S. Environmental Protection Agency (EPA) under Contract No. 68-W9-0006 (TES 9) to conduct preliminary assessments (PA) and visual site inspections (VSI) of hazardous waste treatment and storage facilities in Region 5.

As part of the EPA Region 5 Environmental Priorities Initiative, the RCRA and CERCLA programs are working together to identify and address RCRA facilities that have a high priority for corrective action using applicable RCRA and CERCLA authorities. The PA/VSI is the first step in the process of prioritizing facilities for corrective action. Through the PA/VSI process, enough information is obtained to characterize a facility's actual or potential releases to the environment from solid waste management units (SWMU) and areas of concern (AOC).

A SWMU is defined as any discernible unit at a RCRA facility in which solid wastes have been placed and from which hazardous constituents might migrate, regardless of whether the unit was intended to manage solid or hazardous waste.

The SWMU definition includes the following:

- RCRA-regulated units, such as container storage areas, tanks, surface impoundments, waste piles, land treatment units, landfills, incinerators, and underground injection wells
- Closed and abandoned units
- Recycling units, wastewater treatment units, and other units that EPA has usually exempted from standards applicable to hazardous waste management units
- Areas contaminated by routine and systematic releases of wastes or hazardous constituents. Such areas might include a wood preservative drippage area, a loading or unloading area, or an area where solvent used to wash large parts has continually dripped onto soils.

An AOC is defined as any area where a release of hazardous waste or constituents to the environment has occurred or is suspected to have occurred on a nonroutine and nonsystematic basis. This includes any area where a strong possibility exists that such a release might occur in the future.

The purpose of the PA is as follows:

- Identify SWMUs and AOCs at the facility
- Obtain information on the operational history of the facility
- Obtain information on releases from any units at the facility
- Identify data gaps and other informational needs to be filled during the VSI

The PA generally includes review of all relevant documents and files located at state offices and at the EPA Region 5 office in Chicago.

The purpose of the VSI is as follows:

- Identify SWMUs and AOCs not discovered during the PA
- Identify releases not discovered during the PA
- Provide a specific description of the environmental setting
- Provide information on release pathways and the potential for releases to each medium
- Confirm information obtained during the PA regarding operations, SWMUs, AOCs, and releases

The VSI includes interviewing appropriate facility staff; inspecting the entire facility to identify all SWMUs and AOCs; photographing all visible SWMUs; identifying evidence of releases; making a preliminary selection of potential sampling parameters and locations, if needed; and obtaining additional information necessary to complete the PA/VSI report.

This report documents the results of a PA/VSI of the Reliable Metal Finishing (RMF) facility (EPA Identification No. ILD 122 328 677) in Zion, Lake County, Illinois. The PA was completed on

June 17, 1993. PRC gathered and reviewed information from the Illinois Environmental Protection Agency (IEPA), the Federal Emergency Management Agency (FEMA), Rand McNally, the U.S. Department of the Interior (DOI), the U.S. Geological Survey (USGS), and from EPA Region 5 RCRA files. The VSI was conducted on July 13, 1993. It included interviews with facility representatives and a walk-through inspection of the facility. PRC identified ten SWMUs and three AOCs at the facility.

PRC completed EPA Form 2070-12 using information gathered during the PA/VSI. This form is included in Appendix A. The VSI is summarized and 10 of 18 inspection photographs are included in Appendix B. The eight photographs not included in Appendix B were determined to be taken of areas that did not contain SWMUs or AOCs. Field notes from the VSI are included in Appendix C.

2.0 FACILITY DESCRIPTION

This section describes the facility's location; past and present operations; waste generating processes and waste management practices; history of documented releases; regulatory history; environmental setting; and receptors.

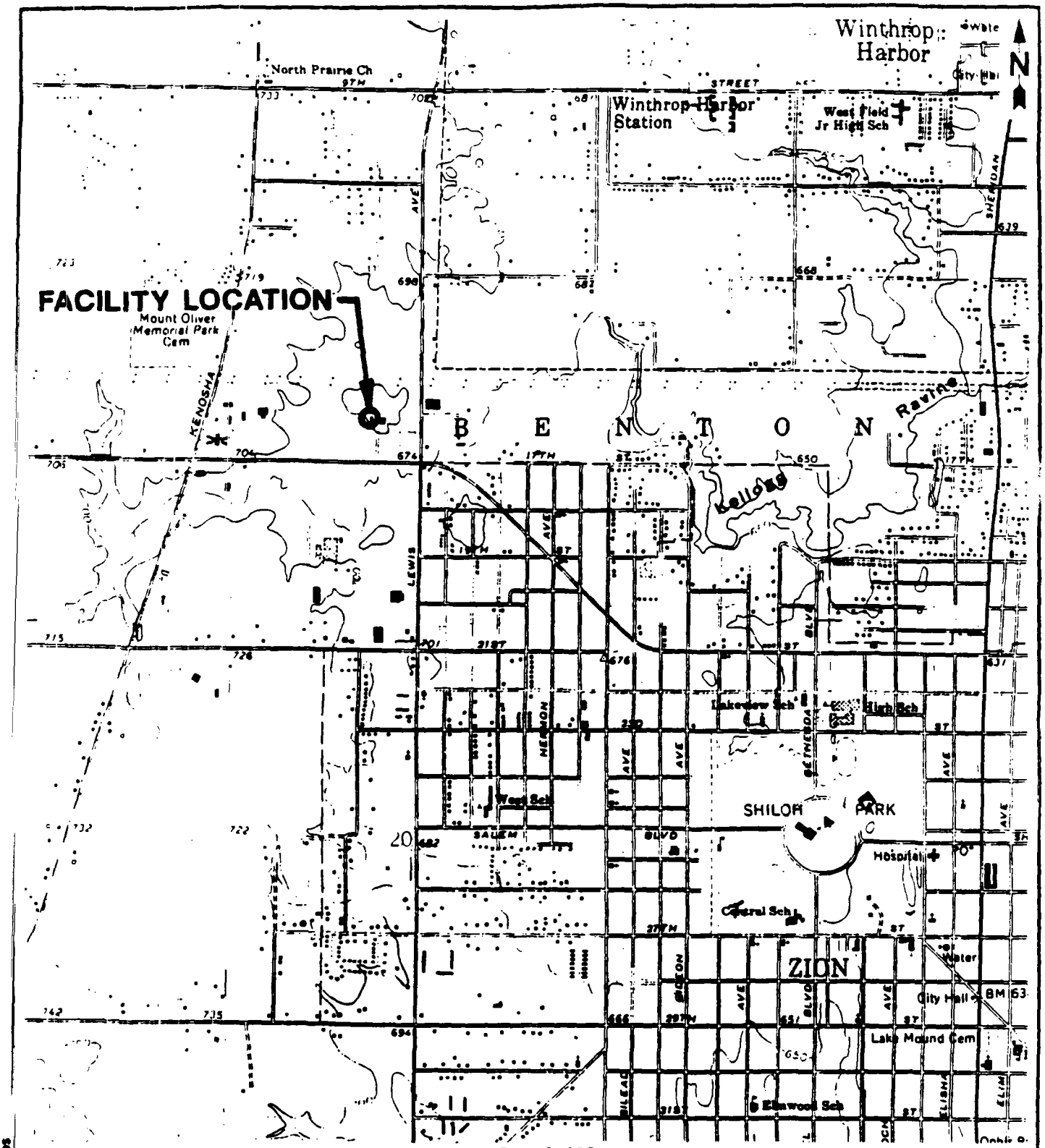
2.1 FACILITY LOCATION

The RMF facility is located at 3204 16th Street in Zion, Lake County, Illinois. Figure 1 shows the location of the facility in relation to the surrounding topographic features (latitude 42°55'12" N, longitude 87°51'25" W) (USGS 1980). The facility occupies 20,000 square feet (almost 0.5 acre) in a residential, commercial, and industrial mixed-use area (DAI 1990c).

The facility is bordered on the north and on the west by vacant lots, on the south by a storage unit company, and on the east by a candy manufacturer.

2.2 FACILITY OPERATIONS

The RMF facility electropolishes stainless steel parts such as oven racks and animal cages. The parts are polished in process tanks containing a mixture of phosphoric acid, sulfuric acid, and chromic flake. Occasionally, if incoming parts are especially dirty or require a high-quality finish, the parts are first cleaned in cleaning tanks containing nitric acid, hydrofluoric acid, and water. These parts are then rinsed in tanks containing only water before entering the process tanks. After polishing, parts are rinsed in tanks containing only water. Parts are then hosed off and rinsed in the nitric rinse tank. This tank contains nitric acid and water. A final rinse tank for water only is currently being installed. The finished products are dried in the drying rooms and then stacked in cages along the west wall of the facility until customer pick-up. Raw materials used in the process tanks are stored in barrels within the facility building. Barrels of reusable acids generated from the Evaporator (SWMU 4) are stored along the east wall of the facility in the Diked Process Area (AOC 1) before being reused in the process tanks. Solid wastes generated from facility operations and the SWMUs where they are managed are discussed in detail in Section 2.3.



SCALE: 1" = 2,000'

QUADRANGLE LOCATION

RELIABLE METAL FINISHING
ZION, ILLINOIS

FIGURE 1

FACILITY LOCATION

PRC ENVIRONMENTAL MANAGEMENT, INC.

SOURCE: MODIFIED FROM USGS, ZION, ILLINOIS—WISCONSIN, QUADRANGLE, 1980

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RMF has operated at the facility since June 1985 and employs three people (IEPA 1986a). The facility and surrounding land is owned by Ted Victor. The facility consists of one 5,000-square-foot building. The facility has not had any underground storage tanks (UST) or aboveground storage tanks. According to facility representatives, the facility was formerly used as a garage where school buses were repaired. No further information about past operations was available.

2.3 WASTE GENERATION AND MANAGEMENT

This section describes waste generation and management at the RMF facility. The facility's SWMUs are identified in Table 1. The facility layout, including SWMUs and AOCs, is shown in Figure 2. The facility's waste streams are summarized in Table 2.

The RMF facility generates the following waste streams: process waste, spent rinse water, and dike water (all with D002 and D007 waste codes). In the past, the facility also generated floor cleanup waste (D002) and nonhazardous excavated soil. The floor cleanup waste was analyzed for extraction procedure (EP) toxic chromium, but no results were available; therefore, the floor cleanup waste was only assigned the D002 waste code (IEPA 1988a). According to facility representatives, the excavated soil was sampled by an IEPA representative and determined to be nonhazardous. However, documentation of these results was not provided to PRC by the facility. The facility's waste streams are discussed in more detail below.

Process waste (D002 and D007) solution and sludge is generated from the process tanks. The tanks initially contain phosphoric acid, sulfuric acid, and chromic flake. This solution becomes spent after repeated use and eventually forms a sludge at the bottom of the tanks. Currently, the process waste is emptied from the tanks into barrels in the Process Waste Satellite Accumulation Area (SAA) (SWMU 6) not more than 2 days before it is sent off site for treatment. Pickup of the process waste is arranged by Federal Environmental Services of Waterbord, South Carolina. The process waste has been picked up by various companies and sent to various facilities for treatment, including Chem-Clear of Baltimore, Maryland; Frontier Chemical in Niagara Falls, New York; Osco of Nashville, Tennessee; and Research Oil of Cleveland, Ohio (IEPA 1990a; IEPA 1992c; RMF 1993a; RMF 1993b). The facility generates about eight barrels of process waste per year.

TABLE 1

SOLID WASTE MANAGEMENT UNITS

SWMU Number	SWMU Name	RCRA Hazardous Waste Management Unit[a]	Status
1	Former Container Storage Area (CSA)	Yes	Inactive; barrels removed in 1991; RCRA closure plan currently being prepared
2	Former Wastewater Discharge Area	Yes	Inactive; soil removed in June 1988; RCRA closure plan currently being prepared
3	Former Pit	Yes[b]	Inactive; removed and backfilled in late 1989; RCRA closure plan currently being prepared
4	Evaporator	No	Active
5	Spent Rinse Water SAA	No	Active
6	Process Waste SAA	No	Active
7	Former Waste Pile	Yes	Inactive; removed in August 1988; RCRA closure plan currently being prepared
8	Excavated Soil Pile	No	Active
9	Containerized Soil Storage Area	No	Active

TABLE 1 (continued)

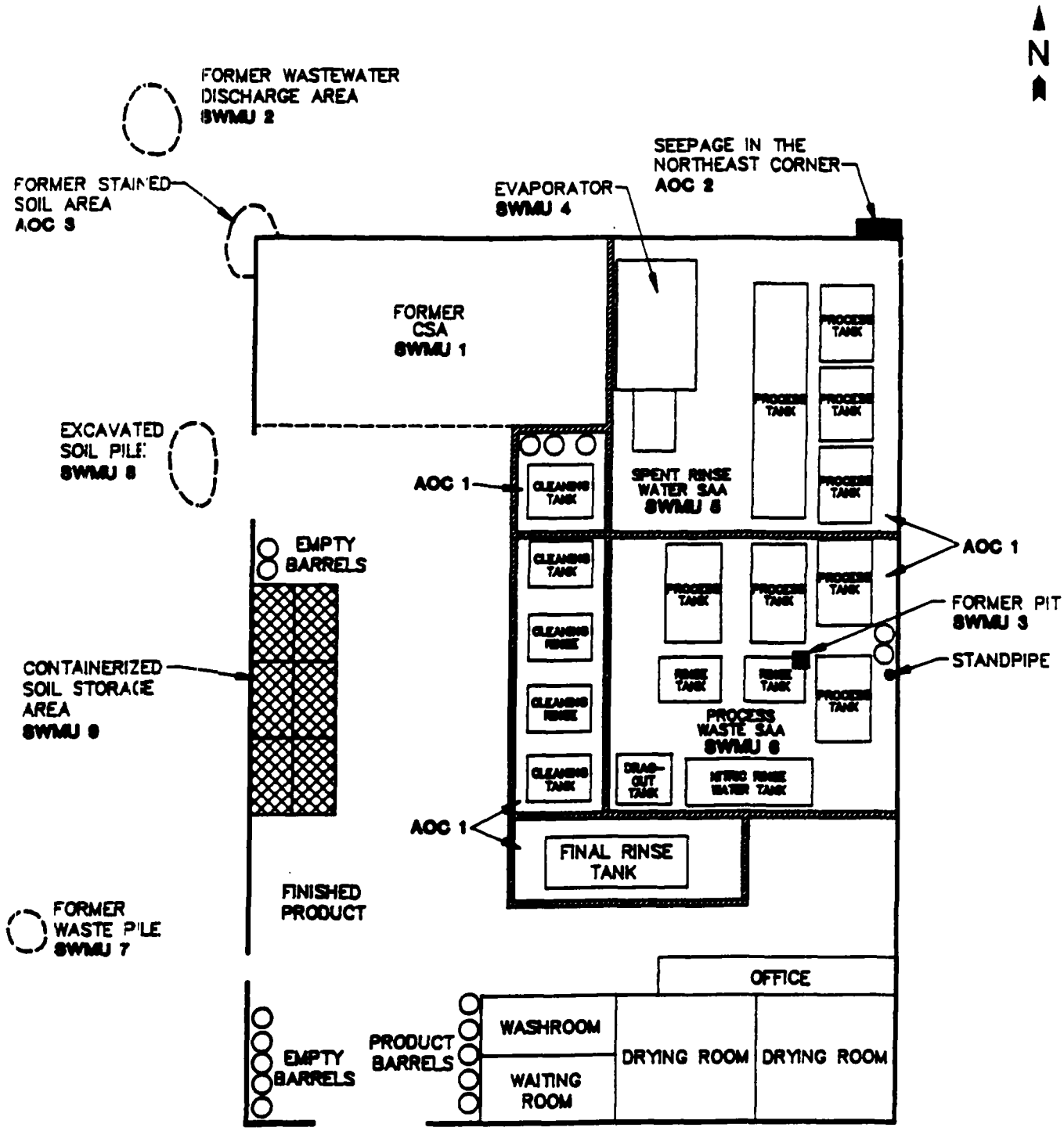
SOLID WASTE MANAGEMENT UNITS

SWMU Number	SWMU Name	RCRA Hazardous Waste Management Unit[a]	Status
10	Former Heated Tank	Yes	Inactive; date of removal not available; RCRA closure plan currently being prepared

Notes:

[a] A RCRA hazardous waste management unit is one that currently requires or formerly required submittal of a RCRA Part A or Part B permit application.

[b] During past inspections, IEPA determined SWMU 3 to be a disposal unit because it was believed that the bottom of the Former Pit was composed of soil only. However, according to facility representatives, SWMU 3 was constructed entirely of concrete, and the fiberglass tank within the Former Pit was emptied as soon it was half full of liquid. If the tank was used for storage only and emptied at least every 90 days, SWMU 3 would not be a RCRA Hazardous Waste Management Unit.



NOTE:

SWMU 10 FORMER HEATED TANK (EXACT LOCATION UNKNOWN; LOCATED WITHIN THE DIKED PROCESS AREA)

AOC 1 DIKED PROCESS AREA (AREA SURROUNDED BY DIKE)

DIKE

NOT TO SCALE

RELIABLE METAL FINISHING
ZION, ILLINOIS

FIGURE 2

FACILITY LAYOUT

PRC ENVIRONMENTAL MANAGEMENT, INC.

SOURCE: MODIFIED FROM AN RMF SKETCH VIEWED BY PRC ON JULY 13, 1993

TABLE 2

SOLID WASTES

Waste/EPA Waste Code[a]	Source	Solid Waste Management Unit
Process waste/(D002 and D007)	Process tank cleaning	SWMU 6
Spent rinse water/(D002 and D007)	Rinse tanks	SWMUs 1, 2[b], 4, 5, and 10
Dike water/(D002 and D007)	Hosing off of parts; drippage during transfer of parts	SWMUs 1, 2[b], and 3
Floor cleanup waste/(D002)[c]	Clean up of liquid on facility floor	SWMU 7
Excavated soil/NA	Excavation of SWMU 2	SWMUs 8 and 9

Notes:

[a] Not applicable (NA) designates nonhazardous waste.

[b] SWMU 2 may have managed either spent rinse water or dike water; information was unavailable to determine the specific waste stream.

[c] Waste stream is no longer generated.

Spent rinse water (D002 and D007) is generated from the first set of rinse tanks in the electropolishing process. The rinse tanks are initially filled with only water, but accumulate D002 and D007 waste from residue left on parts from the process tanks. When the rinse tanks become too dirty to adequately rinse the parts, the spent rinse water is emptied into barrels, transferred to the Spent Rinse Water SAA (SWMU 5), and fed into the Evaporator (SWMU 4) to reclaim the acids in the water. The evaporated liquid is vented through the roof, and the reusable acids are then transferred into barrels and stored along the east wall until they are emptied back into the process tanks for reuse. When the facility first began operations, the spent rinse water was evaporated in the Former Heated Tank (SWMU 10) (IEPA 1986a). Further details about this operation were not available. After use of the Former Heated Tank (SWMU 10) was discontinued in 1988 and before the installation of the current Evaporator (SWMU 4) in 1991, spent rinse water was stored in the Former CSA (SWMU 1) until it was sent off site to Chem-Clear of Chicago, Illinois, for treatment (IEPA 1990c). In March 1988, the Zion Fire Chief discovered that the facility was discharging a green liquid to the Former Wastewater Discharge Area (SWMU 2) near the northwest corner of the facility (IEPA 1988a). This liquid was either spent rinse water or dike water; information was unavailable to determine the specific waste stream managed by SWMU 2. The facility generates about 300 to 800 gallons of spent rinse water per month (IEPA 1991b).

Dike water (D002 and D007) is generated from hosing off parts after they exit the rinse tanks and from the dripping of the parts when they are transferred from one tank to another. In the past, the Former Pit (SWMU 3) collected the dike water in a fiberglass tank set into the ground. According to IEPA documents, the bottom of this unit was composed of soil only, and dike water was disposed of through a hole in the tank. However, according to the RMF facility, the bottom of this unit was constructed of concrete. When the tank was about half full, the dike water was pumped into the barrels located in the Former CSA (SWMU 1). Since the removal of the pit, dike water that accumulates in depressions in the concrete in the Diked Process Area (AOC 1) is pumped into a barrel and emptied back into a rinse tank. Information on the amount of dike water generated by the RMF facility is not available. Past IEPA inspection reports indicate that the Diked Process Area sometimes contained about 2 inches of dike water (IEPA 1986a). However, at the time of the VSI, dike water was only pooled in various portions of the Diked Process Area.

Floor cleanup waste (D002) was generated by the facility in 1986. An IEPA inspection revealed an indoor pile of green sawdust and wood chips, apparently used to absorb liquid in the facility building (IEPA 1986b). By April 1988, the waste pile, about 5 to 10 gallons in volume, had been moved outdoors (IEPA 1988b). The Former Waste Pile (SWMU 7) was excavated in August 1988, and the floor cleanup waste was drummed with process waste (D002 and D007) to be treated off site.

Nonhazardous excavated soil was generated at the RMF facility when the Former Wastewater Discharge Area (SWMU 2) was remediated. In the past, the facility discharged either spent rinse water (D002 and D007) or dike water (D002 and D007) to SWMU 2 for disposal (IEPA 1988a). Sample analysis of the liquid waste in SWMU 2 revealed a chromium content of 124 milligrams per liter (mg/L) (IEPA 1991a). After use of SWMU 2 was discontinued, the liquid waste in the unit seeped into on-site soils. In about June 1988, a facility employee excavated the top 2 inches of soil from the area and placed it in cardboard boxes. These boxes are now located in the Containerized Soil Storage Area (SWMU 9). The next 4 inches of soil was excavated and placed in the Excavated Soil Pile (SWMU 8). According to a facility representative, soil from two of the cardboard boxes was analyzed by an IEPA representative and determined to be nonhazardous. These results were not provided to PRC by the facility.

2.4 HISTORY OF DOCUMENTED RELEASES

This section discusses the history of documented releases to groundwater, surface water, air, and on-site soils at the facility.

Until about May 1986, RMF was discharging contaminated spent rinse water to the sanitary sewer system through a standpipe located along the east wall of the facility in the Diked Process Area (AOC 1) (IEPA 1986a). This activity was reportedly terminated after the North Shore Sanitary District (NSSD) became aware of the discharge and ordered the facility to stop (IEPA 1986a). During a later inspection on February 1, 1993, an RMF facility representative indicated that liquid from the nitric acid rinse tank was discharged to the sanitary sewer through the standpipe approximately once a month, after the rinse solution was neutralized with soda ash. A grab sample of the discharge indicated several violations of NSSD ordinances and a chromium concentration of 33.4 mg/L (NSSD 1993). The specific dates of the discharge could not be obtained by PRC. The

standpipe is currently covered with plastic and tape. RMF claims that the standpipe has been covered since about 1990.

During an April 15, 1988, IEPA inspection, green stains were observed on the soil outside the northwest garage door near the northwest corner of the building (IEPA 1988a). The stains were no longer visible during a September 22, 1989, IEPA inspection, although no record of this contamination being remediated exists (IEPA 1989c). A 1993 investigation report compiled by IEPA indicates that nickel is present at a toxicity characteristic leaching procedure (TCLP) concentration of 6.691 mg/L in the surface soils in the area (IEPA 1993a). Therefore, this area constitutes AOC 3. Also during the April 1988 inspection, a sample of the liquid waste in the Former Wastewater Discharge Area (SWMU 2) was collected. Analysis revealed that the pooled liquid waste had a pH of 1 and a chromium content of 124 mg/L (IEPA 1991a).

On June 7, 1988, IEPA executed a search warrant at the RMF facility. In addition to samples collected from on-site containers and tanks, two soil samples were collected at the Former Wastewater Discharge Area (SWMU 2). Samples were analyzed for pH and extraction procedure (EP) toxicity for chromium. Both samples had a pH of greater than 2. One of the samples was below detection limit for EP toxicity for chromium; the other sample contained chromium at 0.023 mg/L (IEPA 1989a).

In order to investigate possible subsurface contamination, two soil samples were collected from under the Former Pit (SWMU 3) on February 8, 1990. The soil samples were collected at depths of 5 to 6 feet below ground surface (bgs) and analyzed for total chromium levels. The soil samples contained chromium at levels of 47 and 90 parts per million (ppm) (DAI 1990a). On the same date, groundwater samples were collected upgradient of SWMU 3 at 10 to 15 feet bgs. The groundwater samples were analyzed for chromium content and were found to contain less than 0.05 mg/L chromium (DAI 1990b).

During an April 15, 1992, IEPA Comprehensive Groundwater Monitoring Evaluation (CME) inspection, a green material resembling electropolishing solution was observed along the exterior wall of the northeast corner of the facility building. Liquid was apparently seeping from between the foundation and exterior wall of the building (IEPA 1992a). According to RMF, the wall was

cracked, and spent rinse water from the floor of the Diked Process Area (AOC 1) leaked outside. On April 29, 1992, an RMF facility representative excavated a 12- by 1.5- by 2-inch volume of soil along the building wall. It is unknown if the cracks in the wall were repaired. It is also unknown if all of the contamination was remediated by this action; therefore, this area is included in this report as Seepage Area in the Northeast Corner (AOC 2).

In January 1993, an investigation report was completed by IEPA summarizing results of recent groundwater and soil sampling. Three groundwater monitoring wells and one grab well were installed at the facility by IEPA in March or April 1992. Samples were collected from the wells on December 3, 1992, and analyzed for the following total metals: barium, cadmium, chromium, lead, nickel, silver, and zinc. The grab sample, the upgradient well, and one downgradient well showed no metal contamination. The groundwater sample from the second downgradient well contained levels of chromium, nickel, and lead above Illinois Class I groundwater standards. According to the report, these high levels could be due to the fact that this well's water was not free of sediment when sampled. Soils samples were also analyzed for TCLP metals during this investigation. Leachable levels of nickel, zinc, and chromium were discovered in samples from most areas of the facility. In addition to nickel contamination detected at the Former Stained Soil Area (AOC 3), chromium was detected at levels slightly above detection limit from less than 0.01 to 0.015 mg/L. Zinc was mainly detected in surface soils at levels of less than 0.05 to 0.431 mg/L (IEPA 1993a).

2.5 REGULATORY HISTORY

RMF submitted a Notification of Hazardous Waste Activity form to EPA on October 4, 1988 (RMF 1988). The facility has not submitted a RCRA Part A permit application although it did store hazardous waste for greater than 90 days in the past.

RMF submitted a closure plan for the Former CSA (SWMU 1) to IEPA on November 7, 1990. The closure plan was prepared by DePaul and Associates, Inc. (DAI), of Chicago, Illinois, and addressed closure of the Former CSA (SWMU 1) (DAI 1990c). The closure plan was disapproved by IEPA on February 11, 1991 (IEPA 1991a). In this letter, IEPA requested that the closure plan also address the Former Wastewater Discharge Area (SWMU 2), the Former Pit (SWMU 3), the Former Waste Pile (SWMU 7), and the Former Heated Tank (SWMU 10) as hazardous waste treatment, greater than 90

day storage, or disposal units. DAI is currently addressing IEPA comments on the original closure plan.

According to the most recent IEPA correspondence, the facility is currently regulated as a generator subject to reduced requirements (IEPA 1992d). Earlier IEPA correspondence also identifies the facility as a conditionally exempt small-quantity generator, a small-quantity generator, and a fully-regulated generator (IEPA 1986a; IEPA 1990b). In the past, the facility also stored waste for greater than 90 days in the unpermitted Former CSA (SWMU 1). The facility notified as a generator only (RMF 1988).

IEPA conducted 12 inspections at the RMF facility on the following dates:

- May 19, 1986
- November 25, 1986
- April 15, 1988
- June 7, 1988
- August 8, 1988
- September 6, 1988
- September 22, 1989
- January 23, 1990
- April 18, 1990
- October 17, 1991
- April 15, 1992
- November 5, 1992

Currently, unresolved violations concern paperwork deficiencies only, although in the past, the facility has had several waste management violations (IEPA 1992c). The April 15, 1988, inspection was conducted as a follow-up to the discovery that the facility was discharging spent rinse water to the sanitary sewer system through a standpipe located in the Diked Process Area (AOC 1). Although discharging was reportedly terminated at the time of this inspection, on February 1, 1993, the NSSD conducted an inspection at the facility revealing that RMF was discharging waste from the nitric acid rinse tank to the sanitary sewer system through the standpipe (NSSD 1993). According to a facility representative, this activity has also been discontinued. In addition to these inspections, the Zion Police Department executed a search warrant at RMF on June 7, 1988. An IEPA sampling team was also present at this event to sample soil and containerized waste (IEPA 1989a).

The April 15, 1992, Compliance Monitoring Evaluation (CME) inspection revealed that the RMF facility had operated an unpermitted hazardous waste surface impoundment, the Former Pit

(SWMU 3), and had failed to implement a RCRA groundwater monitoring program capable of determining the facility's impact on the quality of groundwater in the uppermost aquifer (IEPA 1992a). DAI prepared a Subsurface Investigation Work Plan for RMF on August 17, 1992 (DAI 1992). The work plan was submitted to IEPA on August 18, 1992, and according to a facility representative, the facility is still awaiting IEPA's response. According to an IEPA interoffice memorandum, the work plan did not adequately address the violations discovered during the groundwater CME inspection (IEPA 1992b).

In addition to civil violations, the owner of RMF, Mike Patel, was found guilty on the following criminal counts on February 24, 1989: (1) four counts of Calculated Criminal Disposal of Hazardous Waste, (2) four counts of Criminal Disposal of Hazardous Waste, (3) four counts of Reckless Disposal of Hazardous Waste, and (4) two counts of Concealment of Criminal Disposal of Hazardous Waste (IEPA 1989b).

The facility does not have any air permits. According to a facility representative, RMF was informed by IEPA and by the manufacturer of the Evaporator (SWMU 4) that no air permits were required for the unit. No documentation of this correspondence was available during the VSI. On June 17, 1993, RMF received a letter from IEPA stating that the facility is required to obtain an air permit for a "decorative chrome plating operation" (IEPA 1993b). It is assumed that this letter requests the facility to obtain an air permit for its entire operation. RMF does not agree that the facility requires an air permit and plans on discussing this issue with IEPA. The facility has no history of odor complaints from area residents.

The facility does not have a National Pollutant Discharge Elimination System (NPDES) permit or any permit to discharge process waste to the sanitary sewer system. Treated water from the sanitary sewer system is discharged to the Des Plaines River in Waukegan, Illinois.

The facility has not had any USTs. No CERCLA activity has been conducted at the facility.

2.6 ENVIRONMENTAL SETTING

This section describes the climate; flood plain and surface water; geology and soils; and groundwater in the vicinity of the facility.

2.6.1 Climate

The climate in Lake County is typically continental with cold winters, warm summers, and frequent, short, periodic fluctuations in temperature, humidity, cloudiness, and wind direction (Ruffner and Bair 1985) The average daily temperature is 47.6 degrees Fahrenheit (°F). The lowest average daily temperature is 15.12°F in January. The highest average daily temperature is 85.9°F in July (Ruffner 1985).

The average annual precipitation for the county is 33.65 inches. The mean annual lake evaporation for the area is about 30 inches. The 1-year, 24-hour maximum rainfall is about 4.0 inches (Ruffner 1985).

The prevailing wind is from the west-southwest. Average wind speed is 10.30 miles per hour (Ruffner 1985).

2.6.2 Flood Plain and Surface Water

The facility is not located in a 100-year flood plain of any surface water body (FEMA 1981). The RMF facility is in an area of rolling topography. The facility is located in a topographically high area with surface drainage south and west into the Kellogg Ravine. The ravine is only used to collect surface runoff. Surface water in this ravine eventually drains into the swampy lowland beach area of Camp Logan along Lake Michigan (IEPA 1993a). The Kellogg Ravine is the nearest surface water body and is located about 800 feet south of the facility. Lake Michigan is located just over 3 miles east of the facility and is used for drinking water, industrial, and recreational purposes (USGS 1980).

2.6.3 *Geology and Soils*

The RMF facility lies within the Wheaton Morainal County of the Great Lakes Section. Specifically, the facility is within the Lake Border Moraine System on the Highland Park Moraine. Approximately 180 feet of glacial deposits, mostly consisting of till overlie the bedrock in this area. The glacial deposits are the Wadsworth Till Member of the Wedron Formation. In general, Wadsworth Till is characterized by a yellow or olive-brown color in the 5- to 10-foot-thick oxidized zone and by a gray color in the unoxidized zone. In the Lake Border Morainic System, the Wadsworth Till is more clayey and typically consists of clay or silty clay till (IEPA 1993a).

Site geology consists of two zones: an oxidized and an unoxidized zone. The upper 9 to 10 feet of soil consists of the oxidized zone, which is characterized by olive-brown clayey silt till with trace pebbles. Below 10 feet in the unoxidized zone, the till is more clayey and consists of pinkish-gray silty clay till with trace pebbles (IEPA 1993a).

The bedrock in the facility area is a fractured dolomite of the Silurian Period. The surface of the bedrock is highly eroded with a well-developed preglacial drainage system. In this area, the rock strata dip toward the east, away from the structural anticline known as the Kankakee Arch. The Silurian-aged dolomite is the uppermost bedrock aquifer. Underlying the dolomite is the Maquoketa Shale (IEPA 1993a).

2.6.4 Groundwater

Groundwater is obtained from four major aquifer systems in northeastern Illinois: the glacial drift system, the shallow bedrock system, and two deep bedrock systems. These systems are distinguished by their hydrologic properties and recharge source areas (Hughes and others 1966). In northeastern Lake County, water-bearing sand and gravel are probably present within the glacial drift. Typical well depths are 35 to 100 feet bgs (Bergstrom and others 1955). The shallow bedrock aquifer system underlies the glacial drift system and is comprised of Silurian-aged dolomite formations and the underlying upper Ordovician Period shales. Water from this aquifer is obtained from fractures and solution openings in the Silurian-aged dolomite beds. Percolation of local precipitation through the

overlying glacial drift and permeable materials within the drift sequence itself are the sources of groundwater recharge (Hughes and others 1966).

The deep bedrock aquifer systems include the Cambrian-Ordovician aquifer system and the Mt. Simon aquifer system. The bottom of the Cambrian-Ordovician aquifer system is located in impermeable shales and dolomites at a depth of about 1,350 feet bgs. This aquifer system is approximately 55 feet thick. Within the Cambrian-Ordovician aquifer system, the Glenwood-St. Peter Sandstone unit aquifer produces less than 200 gallons per minute. This unit has a permeability of approximately 15 gallons per day per square foot. The Ironton-Galesville Sandstone unit is also a major groundwater producing unit in the Cambrian-Ordovician aquifer because it has the most consistent permeability (35 gallons per day per square foot) and thickness (200 feet) of the aquifers in northeastern Illinois. Recharge to the Cambrian-Ordovician aquifer system is mostly from western McHenry, Kane, and Kendall Counties, where the rocks crop out at the surface or lie immediately below the glacial drift. Additional recharge occurs directly from leakage of precipitation downward through the shallow bedrock system (Hughes and others 1966).

Water in the second deep bedrock aquifer system, the Mt. Simon aquifer, occurs under leaky artesian conditions. The top of the Mt. Simon aquifer is present at about 1,650 feet bgs. Although the Mt. Simon aquifer is nearly 1,700 feet thick, only the uppermost 275 feet yield potable water because the water is too highly mineralized below that depth. The average permeability of this unit is approximately 16 gallons per day per square foot (Hughes and others 1966). Recharge occurs mostly through the outcrop region of Cambrian rocks in central southern Wisconsin (Wilman 1971).

Groundwater is used as a private drinking water supply at residences not connected to the municipal water supply system. The nearest downgradient drinking water well is just over 0.5 mile northwest of the facility. Groundwater flow is to the west (IEPA 1993a).

2.7 RECEPTORS

The facility occupies 20,000 square feet in a residential, commercial, and industrial mixed-use area in Zion, Illinois. Zion has a population of about 19,775 (Rand McNally 1993).

The facility is bordered on the north and on the west by vacant lots, on the south by a storage unit company, and on the east by a candy manufacturer. The nearest residential area is located between 0.25 and 0 5 mile from the facility (USGS 1980). The facility is not fenced; therefore, access to open areas is unlimited.

The neares: surface water body, the Kellogg Ravine, is located about 800 feet south of the facility and is used to collect surface runoff. Other surface water bodies in the area include Lake Michigan, which is located just over 3 miles east of the facility (USGS 1980). Lake Michigan is used for drinking water, industrial, and recreational purposes.

Groundwater is used as a private drinking water supply at residences not connected to the municipal water supply system. The nearest downgradient drinking water well is just over 0.5 mile northwest of the facility. Groundwater flow is west. The City of Zion receives its municipal drinking water supply from Lake Michigan.

Sensitive environments are not located on site. The nearest sensitive environment is a palustrine, emergent, seasonally flooded wetland greater than 2 acres in size located within 0.25 mile northwest of the facility (DOI 1981).

3.0 SOLID WASTE MANAGEMENT UNITS

This section describes the ten SWMUs identified during the PA/VSI. The following information is presented for each SWMU: description of the unit, dates of operation, wastes managed, release controls, history of documented releases, and PRC's observations. Figure 2 shows the SWMU locations.

SWMU 1	**Former CSA**
Unit Description:	This unit consists of a 24- by 16-foot area along the north wall inside the facility building. The area is paved with concrete and was used to store barrels of spent rinse water (D002 and D007). No floor drains are present in the vicinity of this unit.
Date of Startup:	This unit became active in June 1985.
Date of Closure:	This unit has been inactive since 1991 but has not been closed. DAI is currently revising the original closure plan to incorporate IEPA comments.
Wastes Managed:	This unit managed barrels of spent rinse water (D002 and D007).
Release Controls:	This unit is located indoors on concrete.
History of Documented Releases:	No releases from this unit have been documented.
Observations:	During the VSI, PRC observed no waste being stored in this unit. Empty drums were stacked in the northwest corner of the unit, and an empty tank was also present (see Photograph No. 1).

SWMU 2	**Former Wastewater Discharge Area**
Unit Description:	This unit is located outdoors about 14 yards northwest of the northwest corner of the facility building. In the past, RMF pumped either spent rinse water or dike water (both with waste codes D002 and D007) or both to this area. The volume of liquid observed in this area was greater than 55 gallons (IEPA 1988a).
Date of Startup:	The exact date of startup is unknown. The Zion Fire Chief observed the facility discharging to this unit on March 30, 1988 (IEPA 1988a).
Date of Closure:	This unit is inactive, but the date that discharging was terminated is unknown. Liquid waste in this unit seeped into the ground, and soil from this area was excavated in about June 1988; however, the unit has not been closed. IEPA requested that the facility include this unit in its revised closure plan.
Wastes Managed:	This unit managed spent rinse water (D002 and D007) or dike water (D002 and D007), or possibly both waste streams. A sample of the pooled liquid waste collected on April 15, 1988,; it had a pH of 1 and a chromium content of 124 mg/L (IEPA 1991a).
Release Controls:	This unit had no release controls. The liquid waste was pumped directly to the soil.
History of Documented Releases:	During an April 15, 1988, IEPA inspection, the liquid waste in this unit was found to have a pH of 1 and a chromium content of 124 mg/L. The other sample contained chromium at 0.023 mg/L (IEPA 1989a). These results indicated that the liquid waste was hazardous. However, the two soil samples collected on June 7, 1988, by IEPA were found to be nonhazardous.

Observations:	PRC noted a pool of standing liquid that appeared to be rain water in this area during the VSI. The area surrounding the water was fully vegetated, and no stains were noted on soil in the area (see Photograph No. 2).
SWMU 3	**Former Pit**
Unit Description:	This unit is located indoors within the Diked Process Area (AOC 1). The unit consisted of a pit measuring about 4 by 2 by 3 feet with a tank in it (IEPA 1992a). The unit was used to collect dike water (D002 and D007); however, it is unknown if the unit was used for storage or disposal.
Date of Startup:	The exact date of startup of this unit is unknown. It is assumed that the unit was installed at the time facility operations began in June 1985.
Date of Closure:	This unit has been inactive since 1989, but it has not been closed. IEPA requested that the facility include this unit in its revised closure plan. The tank was removed and the area was backfilled and paved over.
Wastes Managed:	This unit managed dike water (D002 and D007).
Release Controls:	This unit is located indoors in the Diked Process Area (AOC 1). The structure of the pit is questionable. During past inspections, IEPA noted that the bottom of the Former Pit was composed of soil only, and the dike water was disposed of through a hole in the tank to the underlying soil (IEPA 1989a). However, according to a facility representative, SWMU 3 was constructed entirely of concrete, and the dike water in the fiberglass tank within the Former Pit was emptied

into the drums in the Former CSA (SWMU 1) as soon it was half full of liquid.

History of Documented Releases: Two soil samples were collected from under the unit on February 8, 1990. The soil samples contained chromium at levels of 47 and 90 ppm (DAI 1990a). On the same date, groundwater samples were collected and found to contain less than 0.05 mg/L chromium (DAI 1990b).

Observations: During the time of the VSI, a rinse tank was covering the area where this unit is located; therefore, the integrity of the existing concrete at this unit could not be observed (see Photographs No. 3 and 4).

SWMU 4 **Evaporator**

Unit Description: This unit is located just inside the Diked Process Area (AOC 1) along the north wall of the facility building. The unit is used to reclaim acids from spent rinse water generated in the rinse tanks. The unit treats about two-and-a-half drums of spent rinse water in 24 hours. The average capacity of the unit is about five drums. Evaporated water is vented through the roof. Operation of this unit for 24 hours typically generates about one-quarter barrel of reusable acid. This unit is located on concrete, and no floor drains are present in the area.

Date of Startup: According to IEPA inspection reports, this unit was installed in about 1991 (IEPA 1991b).

Date of Closure: This unit is active.

Wastes Managed: This unit manages spent rinse water (D002 and D007).

Release Controls:	This unit is located indoors on concrete within the Diked Process Area (AOC 1). The evaporated water is vented through the roof. The unit has no air permit for this activity.
History of Documented Releases:	No releases from this unit have been documented.
Observations:	PRC observed green stains on the walls of the unit. No spent rinse water was being evaporated at the time of the VSI (see Photograph No. 5).
SWMU 5	**Spent Rinse Water SAA**
Unit Descr.ption:	This unit is located within the Diked Process Area (AOC 1) near the Evaporator (SWMU 4). Spent rinse water (D002 and D007) to be treated by the Evaporator (SWMU 4) is emptied into barrels and accumulated in this unit until it is treated. This unit is located on concrete. No floor drains exist in the area.
Date of Startup:	This unit began operation in 1991 with the installation of the Evaporator (SWMU 4).
Date of Closure:	This unit is active.
Wastes Managed:	This unit manages spent rinse water (D002 and D007).
Release Controls:	This unit is located indoors on concrete within the Diked Process Area (AOC 1).
History of Documented Releases:	No releases from this unit have been documented.

Observations:	At the time of the VSI, only empty barrels were present in this unit (see Photograph No. 5).
SWMU 6	**Process Waste SAA**
Unit Description:	This unit is located within the Diked Process Area (AOC 1) near the process and rinse tanks and the Former Pit (SWMU 3). Process waste (D002 and D007) is emptied into barrels accumulated in this unit prior to being shipped off site for treatment. The unit is located indoors on concrete.
Date of Startup:	The exact date of startup of this unit is unknown. It is assumed that the unit has been in operation shortly after facility operations began in June 1985.
Date of Closure:	This unit is active.
Wastes Managed:	This unit manages process waste (D002 and D007).
Release Controls:	This unit is located indoors on concrete within the Diked Process Area (AOC 1).
History of Documented Releases:	No releases from this unit have been documented.
Observations:	At the time of the VSI, no waste was being stored in this unit (see Photograph No. 4).
SWMU 7	**Former Waste Pile**
Unit Description:	This unit was located about 20 yards west of the facility building at the edge of RMF's property (IEPA 1988b). The unit contained 5 to

	10 gallons of floor cleanup waste (D002) and was located directly on soil.
Date of Startup:	The exact date of startup of this unit is unknown. It was discovered during an April 1988 IEPA inspection (IEPA 1988a).
Date of Closure:	This unit has been inactive since late August 1988, but it has not been closed. IEPA requested that the facility include this unit in its revised closure plan. After an August 1988, IEPA inspection, an RMF facility representative removed the waste pile and placed the floor cleanup waste (D002) from this unit in a barrel also containing process waste (D002 and D007) to be shipped off site for treatment.
Wastes Managed:	This unit managed floor cleanup waste (D002).
Release Controls:	This unit had no release controls. The waste pile was located directly on soil.
History of Documented Releases:	No releases from this unit have been documented.
Observations:	PRC did not observe any stressed vegetation or soil stains at this unit (see Photograph No. 6).
SWMU 8	**Excavated Soil Pile**
Unit Description:	This unit is located outdoors directly outside of the northwest garage door. The unit is used to store nonhazardous soil excavated from the Former Wastewater Discharge Area (SWMU 2). The pile measures about 30 by 15 by 7 feet and is located directly on soil.
Date of Startup:	This unit began operations in about June 1988.

Date of Closure:	This unit is active.
Wastes Managed:	This unit manages nonhazardous soil excavated from 2 to 6 inches bgs at SWMU 2.
Release Controls:	This unit has no release controls.
History of Documented Releases:	No releases from this unit have been documented.
Observations:	PRC noted vegetation on and around the pile during the VSI. No stains were noted on the soil (see Photograph No. 7).
SWMU 9	**Containerized Soil Storage Area**
Unit Description:	This unit is located indoors along the west wall of the facility building. The unit consists of six cardboard boxes each measuring 4 square feet. The boxes contain the top 2 inches of soil excavated from the Former Wastewater Discharge Area (SWMU 2). The boxes are located on concrete; no floor drains exist in the area.
Date of Startup:	This unit began operations in about June 1988.
Date of Closure:	This unit is active.
Wastes Managed:	This unit manages the top two inches of excavated nonhazardous soil from SWMU 2.
Release Controls:	This unit is located indoors on concrete. No other release controls are present at this unit.
History of Documented Releases:	No releases from this unit have been documented.

Observations:	PRC observed no cracks or stains in the concrete at this unit. The boxes were covered with various parts, empty barrels, and miscellaneous items (see Photograph No. 8).
SWMU 10	**Former Heated Tank**
Unit Description:	This unit was located within the Diked Process Area (AOC 1). Its exact location is not known. The unit was used to evaporate spent rinse water (D002 and D007) (IEPA 1986a). No other information about this unit was available.
Date of Startup:	The exact date of startup of this unit is unknown. It is assumed that the unit became active in June 1985 when facility operations began.
Date of Closure:	This unit has been inactive since about 1988, but it is not closed (IEPA 1988a). IEPA requested that the facility include this unit in its revised closure plan.
Wastes Managed:	This unit managed spent rinse water (D002 and D007).
Release Controls:	This unit is located indoors on concrete in the Diked Process Area (AOC 1).
History of Documented Releases:	No releases from this unit have been documented.
Observations:	PRC could not observe this unit because the facility representative present during the VSI was unaware of its existence. Therefore, no photographs of this unit were taken.

4.0 AREAS OF CONCERN

PRC identified three AOCs during the PA/VSI. These AOCs are discussed below; their locations are shown in Figure 2.

AOC 1 Diked Process Area

During past inspections, IEPA representatives noted that the five compartments in the Diked Process Area were filled with about 2 inches of dike water (D002 and D007) (IEPA 1986a). At the time of the VSI, PRC observed many areas of pooled dike water. The entire concrete floor of the area could not be observed because a majority of it was covered with either tanks or wooden pallets. The concrete that could be observed was eroded in many places. Also present in the diked area is the standpipe through which RMF discharged spent rinse water to the sanitary sewer system. The standpipe is currently covered with plastic and tape. The overall condition of the diked area was significantly stained and poor (see Photograph No. 9).

AOC 2 Seepage Area in the Northeast Corner

During an April 15, 1992, IEPA CME inspection, a green material resembling electropolishing solution was observed along the exterior wall of the northeast corner of the facility building. The liquid apparently seeped from between the foundation and the exterior wall of the building (IEPA 1992a). According to RMF, the wall was cracked, and spent rinse water from the floor of the Diked Process Area (AOC 1) leaked outside through the crack. On April 29, 1992, an RMF facility representative excavated a 12- by 1.5- by 2-inch volume of soil along the wall. No subsequent sampling activities were performed, so it is unknown if all of the contamination was remediated (see Photograph No. 10).

AOC 3 **Former Stained Soil Area**

On April 15, 1988, IEPA noted green stains on the soil outside of the northwest garage door near the northwest corner of the facility building (IEPA 1988a). The stains were no longer visible during a September 22, 1989, IEPA inspection; however, no record exists of the contamination being remediated (IEPA 1989c). A 1993 investigation report compiled by IEPA indicates that nickel was present at a concentration of 6.691 mg/L in the surface soils in this area (IEPA 1993a).

5.0 CONCLUSIONS AND RECOMMENDATIONS

The PA/VSI identified 10 SWMUs and three AOCs at the RMF facility. Background information on the facility's location; operations; waste generating processes and waste management practices; history of documented releases; regulatory history; environmental setting; and receptors is presented in Section 2.0. SWMU-specific information, such as the unit's description, dates of operation, wastes managed, release controls, history of documented releases, and observed condition, is presented in Section 3.0. AOCs are discussed in Section 4.0. Following are PRC's conclusions and recommendations for each SWMU and AOC. Table 3, located at the end of this section, summarizes the SWMUs and AOCs at the facility and the recommended further actions.

SWMU 1 **Former CSA**

Conclusions: This unit was used to store barrels of spent rinse water (D002 and D007) from June 1985 until 1991. The unit has not been used to manage hazardous waste since 1991. RMF submitted a closure plan for this unit in November 1990. IEPA disapproved the closure plan in February 1991. RMF's contractor, DAI, is currently addressing IEPA's comments on the closure plan. Because the unit was located indoors on concrete, the potential for a release to groundwater, surface water, air, and on-site soils is low.

Recommendations: PRC recommends that the facility close this unit in accordance with an IEPA-approved closure plan. A revised closure plan is currently being prepared for the facility by DAI.

SWMU 2 **Former Wastewater Discharge Area**

Conclusions: This unit was used to manage spent rinse water or dike water (both with waste codes D002 and D007), or both. The unit is located about 14 yards northwest of the northwest corner of the facility building. Because waste from this unit was pumped directly to soil, the unit itself constitutes a release to on-site soils. The liquid waste at this unit on April 13, 1988, was found to have a pH of 1

and a chromium content of 124 mg/L, indicating that this was a hazardous waste.

Soil from this unit was excavated in about June 1988 and placed in SWMUs 8 and 9. Two soil samples collected from SWMU 2 in June 1988 indicated that these samples were not hazardous. In February 1991, IEPA requested that the facility include this unit in the revised closure plan. The potential for a release to groundwater, surface water, and air is detailed below.

Groundwater: Moderate. Soil samples were analyzed for EP toxic chromium. It is likely that the total chromium content in the soil exceeds the maximum contaminant level of 0.1 mg/L, and hazardous constituents will migrate to groundwater.

Surface water: Low to moderate. The contaminated surface soil may reach the surface water through surface runoff. The nearest surface water body, the Kellogg Ravine, is located about 800 feet south of the facility and is used only to collect surface runoff and discharge to the lowland beach area.

Air: Low. Any contamination would be below the ground surface.

Recommendations: PRC recommends that the facility close this unit in accordance with an IEPA-approved closure plan. A revised closure plan is currently being prepared for the facility by DAI.

SWMU 3 **Former Pit**

Conclusions: This unit was used to collect dike water (D002 and D007). The unit consisted of a fiberglass tank in a 4- by 2- by 3-foot pit. According to IEPA, the bottom of this pit was constructed of soil, and the unit was used for disposal purposes. According to RMF, the bottom of this pit was constructed of concrete, and the unit was used for storage purposes. A release to on-site

soils has occurred at this unit. Two soil samples from under the unit and two groundwater samples upgradient of the unit were collected in February 1990. The soil samples contained chromium at levels of 47 and 90 ppm. Both groundwater samples contained less than 0.05 mg/L chromium. In February 1991, IEPA requested that RMF include this unit in the revised closure plan. The potential for a release to groundwater, surface water, and air is detailed below.

Groundwater: Moderate to high. Hazardous constituents in the soil may migrate to groundwater.

Surface water: Low. The unit is located indoors.

Air: Low. All soil contamination is below the ground surface.

Recommendations: PRC recommends that the facility close this unit in accordance with an IEPA-approved closure plan. A revised closure plan is currently being prepared for the facility by DAI. PRC also recommends that RCRA groundwater monitoring wells be installed downgradient of the entire facility and that groundwater sampling be conducted as requested by IEPA.

SWMU 4 **Evaporator**

Conclusions: This unit is used to reclaim acids from spent rinse water (D002 and D007) by evaporating the water from the spent rinse water. The reclaimed acids are later reused in the process tanks. This unit has been in operation since 1991. In June 1993, the facility received a letter from IEPA stating the need for an air permit incorporating all facility processes. The potential for a release to groundwater, surface water, air, and on-site soils is detailed below.

Groundwater, surface water, and on-site soils: Low. The unit is located indoors on concrete within a diked area.

Air: Low to Moderate. Evaporated liquid is vented through the roof. The facility claims that the unit does not require an air permit.

Recommendations: PRC recommends that the facility apply for an air permit as requested by IEPA.

SWMU 5 **Spent Rinse Water SAA**

Conclusions: This unit is used to accumulate spent rinse water (D002 and D007) in barrels prior to its treatment in the Evaporator (SWMU 4). The unit has been in operation since 1991. The unit is located indoors in the Diked Process Area (AOC 1); the integrity of the concrete floor and dike in this area is unknown. The unit contained no waste during the VSI. The potential for a release to groundwater, surface water, air, and on-site soils is detailed below.

Groundwater and soil: Low to moderate. The integrity of the concrete floor in the Diked Process Area (AOC 1) is unknown. Portions of the concrete surface appear to be eroded.

Surface water: Low. The unit is located indoors.

Air: Low. The barrels are covered and indoors.

Recommendations: PRC recommends that the facility verify the structural integrity of the concrete floor and dike in this area and report the findings to IEPA.

SWMU 6 **Process Waste SAA**

Conclusions: This unit is used to store process waste (D002 and D007) before it is shipped off site for treatment. This unit has been active since operations began in 1985. The unit contained no waste during the VSI. The unit is located indoors within the Diked Process Area; the integrity of the concrete floor and

dike in this area is unknown. The potential for a release to groundwater, surface water, air, and on-site soils is detailed below.

Groundwater and soil: Low to moderate. The integrity of the concrete floor in the Diked Process Area (AOC 1) is unknown. Portions of the concrete surface appear to be eroded.

Surface water: Low. The unit is located indoors.

Air: Low. The barrels are covered and indoors.

Recommendations: PRC recommends that the facility verify the structural integrity of the concrete floor and dike in this area and report the findings to IEPA.

SWMU 7 **Former Waste Pile**

Conclusions: This unit was used to store floor cleanup waste (D002). The unit was located directly on soil about 20 yards west of the facility building. The pile contained about 5 to 10 gallons of waste. The pile was removed in August 1988. In February 1991, IEPA requested that the facility include this unit in the revised closure plan. The potential for a release to groundwater, surface water, air, and on-site soils is detailed below.

Groundwater and on-site soils: Moderate. This unit was located directly on soil. It is likely that leachable hazardous constituents migrated to on-site soils and possibly groundwater. Also, it is unknown if all of the contamination was remediated when the pile was removed.

Surface water: Low to moderate. The waste pile was relatively small; however, a small possibility exists that waste migrated through surface runoff to the Kellogg Ravine, which is located 800 feet south of the facility.

Air: Low. The waste from unit has been removed.

Recommendations: PRC recommends that the facility close this unit in accordance with an IEPA-approved closure plan. A revised closure plan is currently being prepared for the facility by DAI.

SWMU 8 **Excavated Soil Pile**

Conclusions: This unit is used to store nonhazardous excavated soil from 2 to 6 inches bgs from the Former Wastewater Discharge Area (SWMU 2). Documentation stating that the soil is nonhazardous was not provided to PRC by the facility. The unit is located directly outside of the northwest garage door directly on soil. The pile measures about 30 by 15 by 7 feet and has been in operation since about June 1988. The potential for a release to groundwater, surface water, air, and on-site soils is detailed below.

Groundwater, surface water, air, and on-site soils: Low to moderate. If the soil in SWMU 9, which consists of the top 2 to 6 inches of soil excavated from SWMU 2, is proven to be nonhazardous, it will be assumed that the soil in this unit is also nonhazardous. Therefore, the potential for release would be low. However, if the soil were to contain hazardous constituents, the constituents could easily migrate to all environmental media.

Recommendations: PRC recommends that the facility provide documentation that the soil in SWMU 9 is nonhazardous.

SWMU 9 **Containerized Soil Storage Area**

Conclusions: This unit is used to store the top 2 inches of nonhazardous excavated soil from the Former Wastewater Discharge Area (SWMU 2). The soil is stored in six cardboard boxes, each measuring 4 square feet. Documentation stating that the soil is nonhazardous was not provided to PRC by the facility. Because the

unit is located indoors on concrete, the potential for a release to groundwater, surface water, air, or on-site soils is low.

Recommendations: PRC recommends that the facility verify that the soil stored in this unit is nonhazardous and report the findings to IEPA.

SWMU 10 **Former Heated Tank**

Conclusions: This unit was used to evaporate spent rinse water (D002 and D007). The unit was located indoors on concrete in a diked area. In February 1991, IEPA requested that the facility include this unit in the revised closure plan. No other information about this unit was available. Because this unit is indoors on concrete in a diked area and is no longer in operation, the potential for a release to groundwater, surface water, air, and on-site soils is low.

Recommendations: PRC recommends that the facility close this unit in accordance with an IEPA-approved closure plan. A revised closure plan is currently being prepared for the facility by DAI.

AOC 1 **Diked Process Area**

Conclusions: This area houses the process equipment and SWMUs 3, 4, 5, and 6. During past inspections, IEPA representatives noted that this area was filled with about 2 inches of dike water (D002 and D007). During the VSI, dike water was pooled in several areas of the unit, and portions of concrete appeared to be eroded. The entire concrete floor in the area could not be observed because a majority of it was covered with either tanks or wooden pallets. Also present in this area is the standpipe through which RMF discharged spent rinse water to the sanitary sewer system. The overall condition of the diked area is significantly stained and poor. The potential for a release to groundwater, surface water, air, and on-site soils is detailed below.

Groundwater and soil: Low to moderate. The integrity of the concrete floor in the Diked Process Area (AOC 1) is unknown. Portions of the concrete surface appear to be eroded.

Surface water: Low. The unit is located indoors.

Air: Low to moderate. Because of the corrosive nature of the diked water, it is possible for the hazardous constituents to migrate to air.

Recommendations: PRC recommends that the facility improve general waste management practices in this area. PRC also recommends that the facility verify the structural integrity of the concrete floor and dike in this area and report the findings to IEPA.

AOC 2 **Seepage Area in the Northeast Corner**

Conclusions: In April 1992, green liquid was observed seeping from between the foundation and the exterior wall at the northeast corner of the facility building. According to the facility, the wall was cracked, and dike water from the Diked Process Area (AOC 1) leaked outside through the crack. A 12- by 1.5- by 2-inch volume of soil was excavated from this area in late April 1992. The potential for a release to groundwater, surface water, air, and on-site soils is detailed below.

Groundwater: Moderate. No sampling activities were performed in this area. If soil contamination still remains, it is possible for the hazardous constituents in the contaminated soil to migrate to groundwater.

Surface water: Low to moderate. The contaminated surface soil, if any, may reach the surface water through surface runoff.

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CONFIDENTIAL

Air: Low. The seepage area is now covered by concrete. Any contamination would be below the ground surface.

On-site soils: Moderate. Because no sampling activities were performed after the removal of stained soil, it is possible that contamination may still remain.

Recommendations: PRC recommends that the facility conduct soil sampling at this area to ensure all contamination is removed.

AOC 3 **Former Stained Soil Area**

Conclusions: In April 1988, green stains were noted on the soil outside of the northwest garage door near the northwest corner of the facility building. A release to on-site soils has occurred in this area. Although the stains were no longer visible by September 1989, a 1993 investigation report compiled by IEPA indicates that nickel is present in surface soils in this area at a TCLP concentration of 6.691 mg/L. The potential for a release to groundwater, surface water, and air is detailed below.

Groundwater: Moderate to high. It is possible for the hazardous constituents in the soil to migrate to groundwater.

Surface Water: Low to moderate. The contaminated surface soil may reach the surface water through surface runoff.

Air: Low. No volatile compounds are present in the soil; therefore, it is unlikely that nickel will migrate to air.

Recommendations: PRC recommends that the facility remove the contaminated soil and perform soil sampling in the area to ensure that all contamination is removed.

TABLE 3

SWMU AND AOC SUMMARY

SWMU	Dates of Operation	Evidence of Release	Recommended Further Action
1. Former CSA	June 1985 to 1991	None	PRC recommends that RMF close this unit in accordance with an IEPA-approved closure plan.
2. Former Wastewater Discharge Area	Unknown to June 1988	Chromium detected in soil at 0.023 mg/L.	PRC recommends that RMF close this unit in accordance with an IEPA-approved closure plan.
3. Former Pit	June 1985 to 1989	Chromium detected in soil at 47 and 90 ppm.	PRC recommends that RMF close this unit in accordance with an IEPA-approved closure plan, PRC also recommends that RMF install RCRA groundwater monitoring wells downgradient of the entire facility and conduct groundwater sampling, as requested by IEPA.
4. Evaporator	1991 to present	None	PRC recommends that RMF apply for an air permit as requested by IEPA.
5. Spent Rinse Water SAA	1991 to present	None	PRC recommends that RMF verify the structural integrity of the concrete floor and dike in AOC 1.

TABLE 3 (continued)

SWMU AND AOC SUMMARY

SWMU	Dates of Operation	Evidence of Release	Recommended Further Action
6. Process Waste SAA	June 1985 to present	None	PRC recommends that RMF verify the structural integrity of the concrete floor and dike in AOC 1.
7. Former Waste Pile	Before April 1988 to August 1988	None	PRC recommends that RMF close this unit in accordance with an IEPA-approved closure plan.
8. Excavated Soil Pile	June 1988 to present	None	PRC recommends that RMF provide documentation that the soil in SWMU 9 is nonhazardous.
9. Containerized Soil Storage Area	June 1988 to present	None	PRC recommends that RMF provide documentation that soil in this unit is nonhazardous.
10. Former Heated Tank	June 1985 to 1988	None	PRC recommends that RMF close this unit in accordance with an IEPA-approved closure plan.

TABLE 3 (continued)

SWMU AND AOC SUMMARY

AOC	Dates of Operation	Evidence of Release	Recommended Further Action
1. Diked Process Area	June 1985 to present	Entire area is stained green with areas of pooled dike water.	PRC recommends that RMF improve general waste management practices in this area. PRC also recommends that RMF verify the integrity of the concrete floor and dike.
2. Seepage Area in the Northeast Corner	Before April 15, 1992 to April 29, 1992	Green liquid seeping from inside building.	PRC also recommends soil sampling to ensure that all contamination is removed.
3. Former Stained Soil Area	April 15, 1988 to present	Green stains on soil; nickel detected at 6.991 mg/L.	PRC recommends that RMF remove all contaminated soil and conduct soil sampling to ensure that all contamination is removed.

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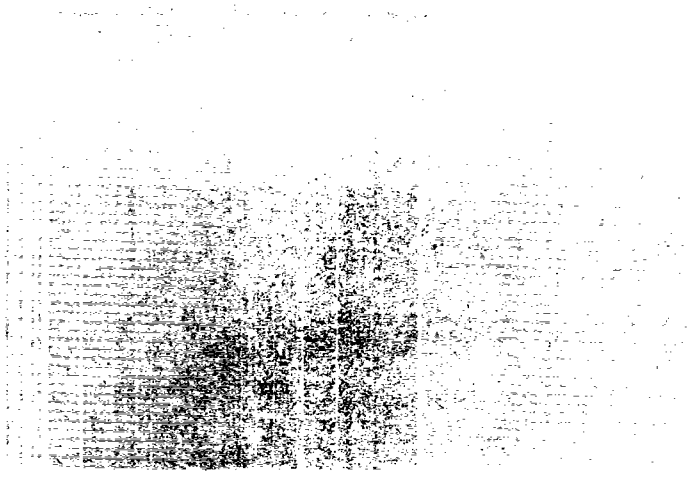
APPENDIX A

EPA PRELIMINARY ASSESSMENT FORM 2070-12

(Four Pages)



EPA

POTENTIAL HAZARDOUS WASTE SITE
PRELIMINARY ASSESSMENT
PART 1 - SITE INFORMATION AND ASSESSMENT

I. IDENTIFICATION

01 STATE	02 SITE NUMBER
IL	IL D122328677

II. SITE NAME AND LOCATION

01 SITE NAME (Legal, common, or descriptive name of site)	02 STREET, ROUTE NO. OR SPECIFIC LOCATION IDENTIFIER				
Reliable Metal Finishing (RMF)	3204 16th Street				
03 CITY	**04 STATE**	**05 ZIP CODE**	**06 COUNTY**	**07 COUNTY CODE**	**08 CONG DIST**
Zion	IL	60099	Lake		
09 COORDINATES LATITUDE: 42°55'12" N | LONGITUDE: 87°51'25" W					

10 DIRECTIONS TO SITE (Starting from nearest public road)
Take Interstate 173 east to Lewis Ave. Proceed north on Lewis Ave. to 16th Street. Proceed west on 16th Street to the facility.

III. RESPONSIBLE PARTIES

01 OWNER (If known)	02 STREET (Business, mailing residential)		
Ted Victor	824 Roger Road		
03 CITY	**04 STATE**	**05 ZIP CODE**	**06 TELEPHONE NUMBER**
Gurnee	IL	60031	Unknown
07 OPERATOR (If known and different from owner)	**08 STREET** (Business, mailing, residential)		
RMF	3204 16th Street		
09 CITY	**10 STATE**	**11 ZIP CODE**	**12 TELEPHONE NUMBER**
Zion	IL	60099	(708) 872-4334

13 TYPE OF OWNERSHIP (Check one)
☒ A. PRIVATE ☐ B. FEDERAL: _____ (Agency Name) ☐ C. STATE ☐ D. COUNTY ☐ E. MUNICIPAL
☐ F. OTHER _____ (Specify) ☐ G. UNKNOWN

14. OWNER/OPERATOR NOTIFICATION ON FILE (Check all that apply)
☒ A. RCRA 3010 DATE RECEIVED: 10 /04 /88 (MONTH DAY YEAR) ☐ B. UNCONTROLLED WASTE SITE (CERCLA 103 c) DATE RECEIVED: ___/___/___ (MONTH DAY YEAR) ☐ C. NONE

IV. CHARACTERIZATION OF POTENTIAL HAZARD

01 ON SITE INSPECTION
☒ YES DATE 07/13/93
☐ NO

BY (Check all that apply)
☐ A. EPA ☒ B. EPA CONTRACTOR ☐ C. STATE ☐ D. OTHER CONTRACTOR
☐ E. LOCAL HEALTH OFFICIAL ☐ F. OTHER: _____ (Specify)

CONTRACTOR NAME(S): PRC Environmental Management, Inc. (PRC)

02 SITE STATUS (Check one)
☒ A. ACTIVE ☐ B. INACTIVE ☐ C. UNKNOWN

03 YEARS OF OPERATION
1985 (BEGINNING YEAR) | Present (ENDING YEAR) ☐ UNKNOWN

04 DESCRIPTION OF SUBSTANCES POSSIBLY PRESENT, KNOWN, OR ALLEGED

Phosphoric, sulfuric and nitric acids; and chromic flake

05 DESCRIPTION OF POTENTIAL HAZARD TO ENVIRONMENT AND/OR POPULATION

Potential hazard to the environment exists because of soil and groundwater contamination.

V. PRIORITY ASSESSMENT

01 PRIORITY FOR INSPECTION (Check one. If high or medium is checked, complete Part 2 - Waste Information and Part 3 - Description of Hazardous Conditions and Incidents.)

☐ A. HIGH (Inspection required promptly) ☒ B. MEDIUM (Inspection required) ☐ C. LOW (Inspect on time-available basis) ☐ D. NONE (No further action needed; complete current disposition form)

VI. INFORMATION AVAILABLE FROM

01 CONTACT	02 OF (Agency/Organization)			03 TELEPHONE NUMBER
Kevin Pierard	EPA			(312) 886-4448
04 PERSON RESPONSIBLE FOR ASSESSMENT	**05 AGENCY**	**06 ORGANIZATION**	**07 TELEPHONE NUMBER**	**08 DATE**
Jami Cull		PRC	(312) 856-8700	08/13/93 (MONTH DAY YEAR)

EPA

POTENTIAL HAZARDOUS WASTE SITE
PRELIMINARY ASSESSMENT
PART 2 - WASTE INFORMATION

I. IDENTIFICATION	
01 STATE	02 SITE NUMBER
IL	IL D122328677

II. WASTE STATES, QUANTITIES, AND CHARACTERISTICS

01 PHYSICAL STATES *(Check all that apply)*

- ■ A. SOLID
- □ B. POWDER, FINES
- □ C. SLUDGE
- □ D. OTHER _____ *(Specify)*
- □ E. SLURRY
- □ F. LIQUID
- □ G. GAS

02 WASTE QUANTITY AT SITE
(Measures of waste quantities must be independent)

TON _____

CUBIC YARDS approx. 72

NO. OF DRUMS _____

03 WASTE CHARACTERISTICS *(Check all that apply)*

- □ A. TOXIC
- □ B. CORROSIVE
- □ C. RADIOACTIVE
- □ D. PERSISTENT
- □ E. SOLUBLE
- □ F. INFECTIOUS
- □ G. INFLAMMABLE
- □ H. IGNITABLE
- □ I. HIGHLY VOLATILE
- □ J. EXPLOSIVE
- □ K. REACTIVE
- □ L. INCOMPATIBLE
- ■ M. NOT APPLICABLE

III. WASTE TYPE

CATEGORY	SUBSTANCE NAME	01 GROSS AMOUNT	02 UNIT OF MEASURE	03 COMMENTS
SLU	SLUDGE			
OLW	OILY WASTE			
SOL	SOLVENTS			
PSD	PESTICIDES			
OCC	OTHER ORGANIC CHEMICALS			
ICC	INORGANIC CHEMICALS			
ACD	ACIDS			
BAS	BASES			
MES	HEAVY METALS	72	Cubic yards	Excavated soil

IV. HAZARDOUS SUBSTANCES *(See Appendix for most frequently cited CAS Numbers)*

CATEGORY	02 SUBSTANCE NAME	03 CAS NUMBER	04 STORAGE/DISPOSAL METHOD	05 CONCENTRATION	06 MEASURE OF CONCENTRATION
MES	Chromium		In soil; stored in boxes and in soil pile		Facility claims that the soil is nonhazardous, but no documentation was provided to prove this claim. The soil is likely to contain low levels of chromium.

V. FEEDSTOCKS *(See Appendix for CAS Numbers)*

CATEGORY	01 FEEDSTOCK NAME	02 CAS NUMBER	CATEGORY	01 FEEDSTOCK NAME	02 CAS NUMBER
FDS			FDS		
FDS			FDS		
FDS			FDS		
FDS			FDS		

VI. SOURCES OF INFORMATION *(Cite specific references; e.g., state files, sample analysis, reports)*

Bergstrom, R.E. and others; DePaul and Associates; Federal Emergency Management Agency; Hughes, E.M. and others; Illinois EPA; North Shore Sanitary District; Rand McNally; RMP; Ruffner, A.; Ruffner, A. and Blair, E.; U.S. Department of the Interior; U.S. Geological Survey; and Wilman, H.B.

EPA

POTENTIAL HAZARDOUS WASTE SITE
PRELIMINARY ASSESSMENT
PART 3 - DESCRIPTION OF HAZARDOUS CONDITIONS AND INCIDENTS

I. IDENTIFICATION	
01 STATE: IL	02 SITE NUMBER: IL D122328677

II. HAZARDOUS CONDITIONS AND INCIDENTS

01 [X] A. GROUNDWATER CONTAMINATION — 02 [X] OBSERVED (DATE: 12/03/91) — [ ] POTENTIAL — [ ] ALLEGED
03 POPULATION POTENTIALLY AFFECTED: approx. 25 — 04 NARRATIVE DESCRIPTION

Groundwater contamination beneath the facility has been detected. Chromium, nickel and lead were detected at concentrations above the Illinois Class I groundwater standards in an on-site monitoring well.

01 [ ] B. SURFACE WATER CONTAMINATION — 02 [ ] OBSERVED (DATE:) — [ ] POTENTIAL — [ ] ALLEGED
03 POPULATION POTENTIALLY AFFECTED: — 04 NARRATIVE DESCRIPTION

None; the nearest surface water body is 800 feet from the facility.

01 [ ] C. CONTAMINATION OF AIR — 02 [ ] OBSERVED (DATE:) — [ ] POTENTIAL — [ ] ALLEGED
03 POPULATION POTENTIALLY AFFECTED: — 04 NARRATIVE DESCRIPTION

None

01 [ ] D. FIRE/EXPLOSIVE CONDITIONS — 02 [ ] OBSERVED (DATE:) — [ ] POTENTIAL — [ ] ALLEGED
03 POPULATION POTENTIALLY AFFECTED: — 04 NARRATIVE DESCRIPTION

None

01 [X] E. DIRECT CONTACT — 02 [ ] OBSERVED (DATE:) — [X] POTENTIAL — [ ] ALLEGED
03 POPULATION POTENTIALLY AFFECTED: 3 — 04 NARRATIVE DESCRIPTION

Surface soils near the northwest garage door are contaminated.

01 [X] F. CONTAMINATION OF SOIL — 02 [X] OBSERVED (DATE: 1992) — [ ] POTENTIAL — [ ] ALLEGED
03 AREA POTENTIALLY AFFECTED: (Acres) — 04 NARRATIVE DESCRIPTION

Contaminated soil has been discovered beneath the former pit and near the northwest garage door.

01 [X] G. DRINKING WATER CONTAMINATION — 02 [ ] OBSERVED (DATE:) — [X] POTENTIAL — [ ] ALLEGED
03 POPULATION POTENTIALLY AFFECTED: approx. 25 — 04 NARRATIVE DESCRIPTION

Drinking water for the Zion area is obtained from Lake Michigan, but private wells do exist in the area.

01 [X] H. WORKER EXPOSURE/INJURY — 02 [ ] OBSERVED (DATE:) — [X] POTENTIAL — [ ] ALLEGED
03 POPULATION POTENTIALLY AFFECTED: 3 — 04 NARRATIVE DESCRIPTION

Workers may be exposed to contaminants in areas where surface soil contamination exists.

01 [ ] I. POPULATION EXPOSURE/INJURY — 02 [ ] OBSERVED (DATE:) — [ ] POTENTIAL — [ ] ALLEGED
03 POPULATION POTENTIALLY AFFECTED: — 04 NARRATIVE DESCRIPTION

None

EPA

POTENTIAL HAZARDOUS WASTE SITE
PRELIMINARY ASSESSMENT
PART 3 - DESCRIPTION OF HAZARDOUS CONDITIONS AND INCIDENTS

I. IDENTIFICATION

01 STATE	02 SITE NUMBER
IL	IL D122328677

II. HAZARDOUS CONDITIONS AND INCIDENTS (Continued)

01 ☐ J. DAMAGE TO FLORA — 02 ☐ OBSERVED (DATE:_____) ☐ POTENTIAL ☐ ALLEGED
04 NARRATIVE DESCRIPTION

None; no reports document damage to flora.

01 ☐ K. DAMAGE TO FAUNA — 02 ☐ OBSERVED (DATE:_____) ☐ POTENTIAL ☐ ALLEGED
04 NARRATIVE DESCRIPTION

None; no reports document damage to fauna.

01 ☐ L. CONTAMINATION OF FOOD CHAIN — 02 ☐ OBSERVED (DATE:_____) ☐ POTENTIAL ☐ ALLEGED
04 NARRATIVE DESCRIPTION

None

01 ☐ M. UNSTABLE CONTAINMENT OF WASTES — 02 ☐ OBSERVED (DATE:_____) ☐ POTENTIAL ☐ ALLEGED
03 POPULATION POTENTIALLY AFFECTED: _____ 04 NARRATIVE DESCRIPTION

None

01 ☐ N. DAMAGE TO OFF-SITE PROPERTY — 02 ☐ OBSERVED (DATE:_____) ☐ POTENTIAL ☐ ALLEGED
04 NARRATIVE DESCRIPTION

None

01 ☒ O. CONTAMINATION OF SEWERS, DRAINS, WWTPS — 02 ☒ OBSERVED (DATE: 02/01/93) ☐ POTENTIAL ☐ ALLEGED
04 NARRATIVE DESCRIPTION

The facility discharged neutralized spent nitric acid rinse water to a standpipe that leads to the sanitary sewer system. The discharged liquid contained chromium at 33.4 mg/L.

01 ☒ P. ILLEGAL/UNAUTHORIZED DUMPING — 02 ☒ OBSERVED (DATE: 03/30/88) ☐ POTENTIAL ☐ ALLEGED
04 NARRATIVE DESCRIPTION

The facility was caught illegally disposing of spent rinse water or dike water (both with waste codes D002 and D007) by pumping it to an area northwest of the facility building.

05 DESCRIPTION OF ANY OTHER KNOWN, POTENTIAL, OR ALLEGED HAZARDS

None

III. TOTAL POPULATION POTENTIALLY AFFECTED:_____

IV. COMMENTS

None

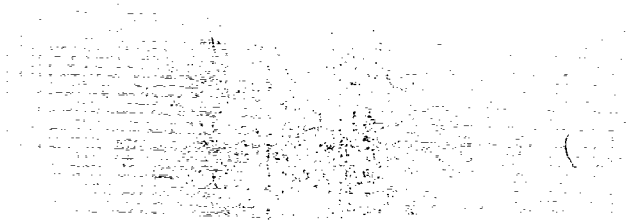
V. SOURCES OF INFORMATION *(Cite specific references; e.g., state files, sample analysis, reports)*

EPA Region 5, Illinois Environmental Protection Agency site inspection

APPENDIX B

VISUAL SITE INSPECTION SUMMARY AND PHOTOGRAPHS

(Eight Pages)



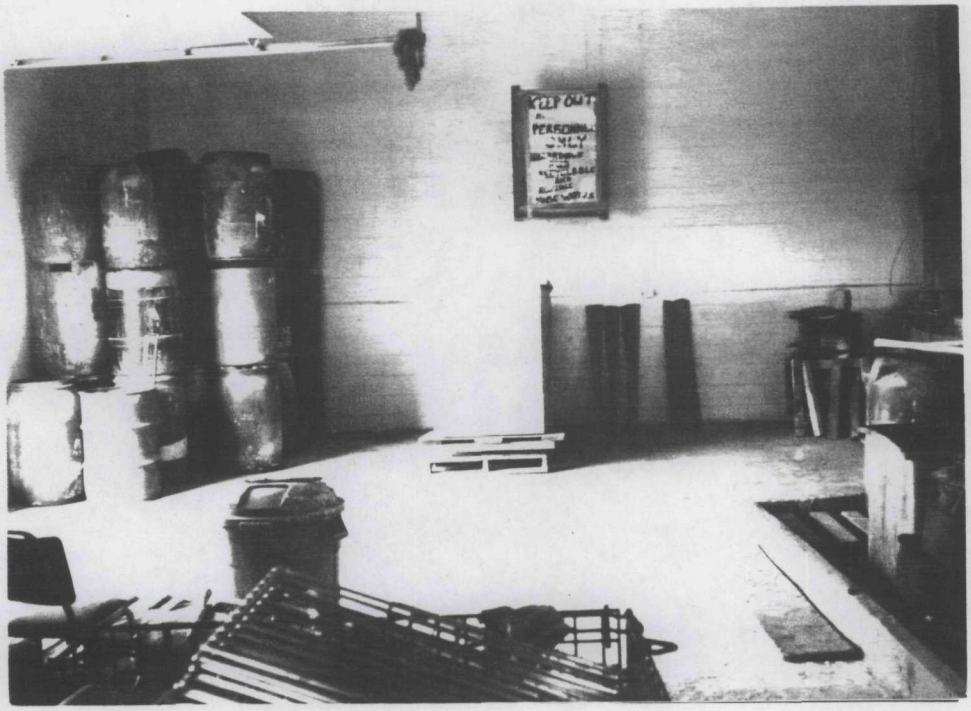
VISUAL SITE INSPECTION SUMMARY

Reliable Metal Finishing (RMF)
3204 16th Street
Zion, Illinois 60099
ILD 122 328 677

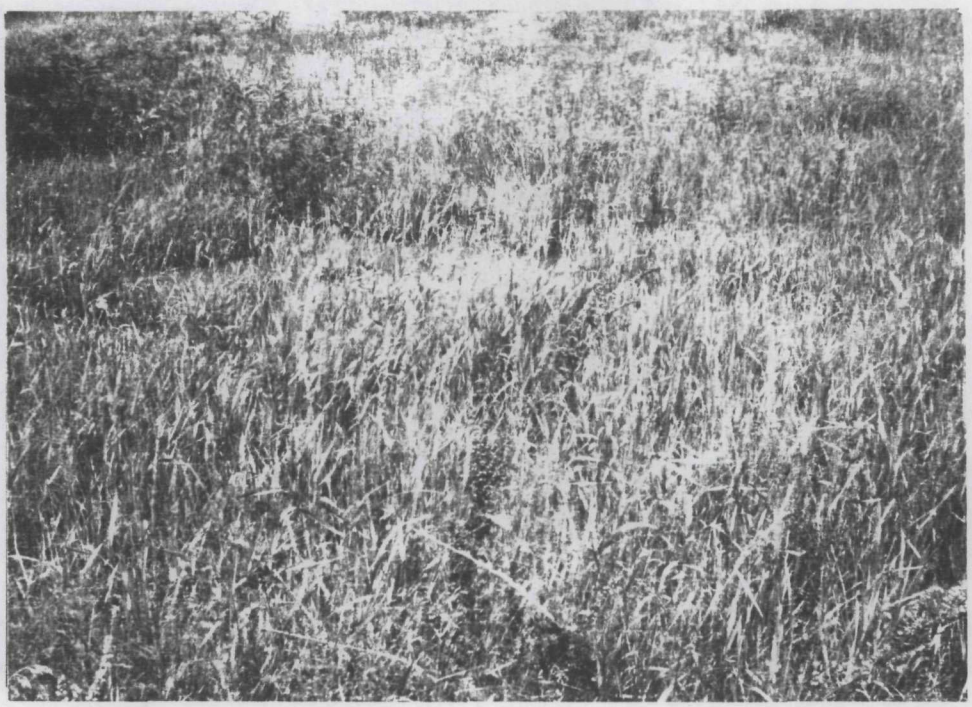
Date:	July 13, 1993
Primary Facility Representative: Representative Telephone No.:	James Hangebrauck, RMF 708/872-4334
Inspection Team:	Jami Cull, PRC Environmental Management, Inc. (PRC) Shin Ahn, PRC
Photographer:	Shin Ahn, PRC
Weather Conditions:	Sunny, calm, 75°F
Summary of Activities:	The visual site inspection (VSI) began at 9:00 a.m. with an introductory meeting. The inspection team explained the purpose of the VSI and the agenda for the visit. The facility representative then discussed the facility's past and current operations, solid wastes generated, and release history. The facility representative provided the inspection team with copies of requested documents. The VSI tour began at 10:45 a.m. The inspection team first toured the Diked Process Area (Area of Concern [AOC] 1), which also houses the Former Pit (Solid Waste Management Unit [SWMU] 3), the Process Waste Satellite Accumulation Area (SAA) (SWMU 6), the Evaporator (SWMU 4), and the Spent Rinse Water SAA (SWMU 5). Then, continuing along the north and west walls of the facility, the inspection team observed the Former Container Storage Area (CSA) (SWMU 1) and the Containerized Soil Storage Area (SWMU 9). Outdoors, the inspection team toured the Former Waste Pile (SWMU 7), the Excavated Soil Pile (SWMU 8), the Former Wastewater Discharge Area (SWMU 2), and the Seepage in the Northwest Corner (AOC 2). The Former Heated Tank (SWMU 10) was not inspected because the facility representative present during the VSI was

not aware of the presence of this unit. The Former Stained Soil Area (SWMU 3) was not inspected because the area was not identified until after the VSI.

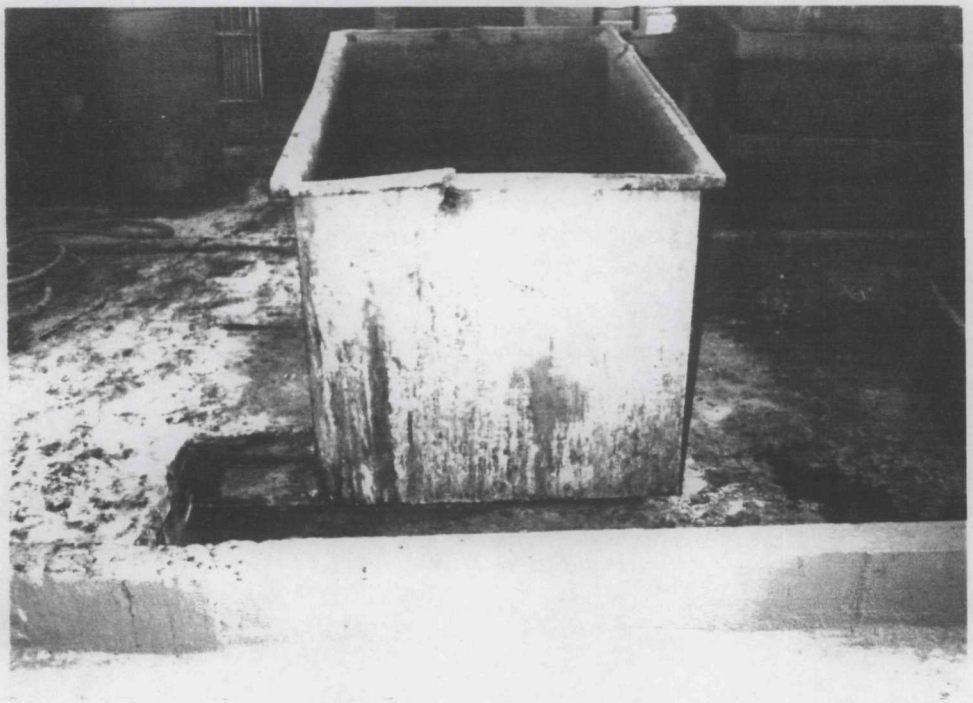
The tour concluded at 12:25 p.m., after which the inspection team held an exit meeting with facility representatives. The VSI was completed and the inspection team left the facility at 2:10 p.m.



Photograph No. 1 (No. 11 in field notes) Location: SWMU 1
Orientation: North Date: July 13, 1993
Description: Former CSA; drums and tank were empty during the VSI

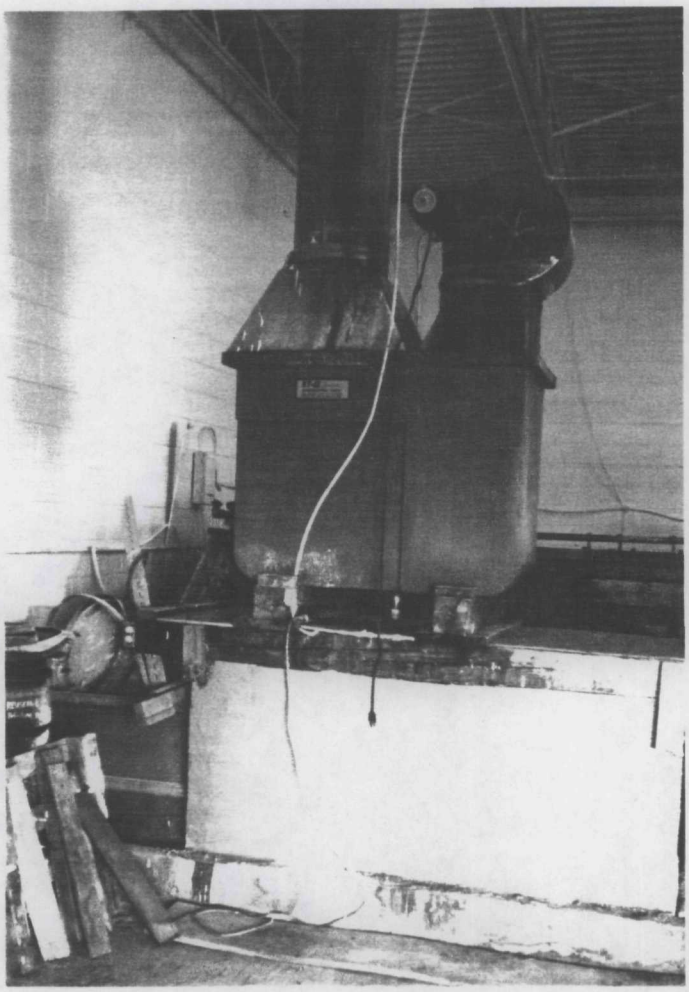


Photograph No. 2 (No. 15 in field notes) Location: SWMU 2
Orientation: Northwest Date: July 13, 1993
Description: Former Wastewater Discharge Area; note the standing water and surrounding vegetation



Photograph No. 3 (No. 1 in field notes) Location: SWMU 3 and AOC 1
Orientation: East Date: July 13, 1993
Description: Tank formerly located in the Former Pit (SWMU 3); tank now used as a rinse tank for precleaning

Photograph No. 4 (No. 8 in field notes) Location: SWMUs 3 and 6
Orientation: North Date: July 13, 1993
Description: Former Pit and Process Waste SAA; rinse tank and wooden pallets now cover the Former Pit area; barrels in the surrounding SAA are empty



Photograph No. 5 (No. 9 in field notes) Location: SWMUs 4 and 5
Orientation: East Date: July 13, 1993
Description: Evaporator; note the green stains on the unit; Spent Rinse Water SAA (SWMU 5) is located behind the Evaporator

Photograph No. 6 (No. 13 in field notes)
Orientation: West
Description: Former Waste Pile; note the abundant vegetation

Location: SWMU 7
Date: July 13, 1993

Photograph No. 7 (No. 17 in field notes)
Orientation: West
Description: Excavated Soil Pile; note the surrounding vegetation

Location: SWMU 8
Date: July 13, 1993

Photograph No. 8 (No. 12 in field notes) Location: SWMU 9
Orientation: West Date: July 13, 1993
Description: Containerized Soil Storage Area; barrels in this area were empty

Photograph No. 9 (No. 7 in field notes) Location: AOC 1
Orientation: South Date: July 13, 1993
Description: Diked Process Area; note stained concrete and pooled dike water; concrete beneath pooled dike water is eroded

Photograph No. 10 (No. 18 in field notes) Location: AOC 2
Orientation: West Date: July 13, 1993
Description: Seepage in the Northwest Corner; note the concrete present where soil was excavated

APPENDIX C

VISUAL SITE INSPECTION FIELD NOTES

(16 Pages)

Reliable Metal Finishing ①
3204 16th Street - Zion
ILD 122 328 677
9:00 AM - Arrive at Facility
Sunny - 75°
PRC - Jami Cull
Shin Ahn
RMF - Jim Hangebrauck

Electropolishing of stainless steel
- takes off surface

- Jim here for 5 yrs.
Mike here for 7 yrs.

- garage here previously,
work on school busses etc.,
(also owned by Mr. Victor)
Ted Victor is owner,
RMF rents from him

Lot - 100'x100'
Building - 50'x100'

NO fence

Mike & Mary Patel are only other employs
Work 6 days/week, 1 shift

phosphuric, sulphuric, chromic flake in process tanks
- goes from yellow to green from use
- parts hung ON rod w/ hook & dipped in
- load can take up to 3 hrs. or only 1 hr. or 4
- parts then taken from process tank, by hand,

to the rinse tank to soak (5 MIN. or MORE)
- contains only H_2O
- After rinse tank, taken (by hand) to Nitric rinse water tank - contains Nitric acid and water
- before going to Nitric rinse tank, parts are hosed off, usually into an empty rinse tank
  stand pipe
- ~~floor drain~~ behind process tank is now taped up with plastic

- of 2 floor drains near bathroom, North drain is capped, south drain has a brick overlaying it.

- reusable acid from evaporator (which evaporates rinse water) used to be all along east wall - Now only 2 barrels

- generate about 8 barrels of of sludge from process tanks

- Sludge is ~~taken to~~ pickup arranged by Federal HSI Environmental Services IN Waterbord, SC. (SINCE 1992 ?)

- 2 days before Federal ENV. comes to pick up sludge, RMF removes sludge from process tanks and puts it in D.O.T. barrels for pick-up.

- 4/28/93 19 DBC Manifest lists Elk Transportation INC. (PAD 987 271 020) as Trans. 1, and Transtech Environmental (OHD 987 012 838) as Trans 2, and TSDF as Research Oil in Cleveland, OH (OHD 004 178 612) (3 drums);

(6)

- Federal only arranges pick up -- other companies will do pick up

- 3/4/93 Manifest lists St. Joesph Motor Lines as Trans. 1 (GAD 042 097 261), Transtech ENV. as Trans 2, and OSCO of Nashville, TN as TSDF (TND 980 515 779)

- Currently putting in 1 tank in an additional diked area for a final rinse with water

(7)

- rinse water is only in drums no more than 48 hours before it is emptied into the evaporator

- old storage area contained drums of rinse water for more than 90 days -- Closure plan submitted for CSA
- still ongoing with comments
- RMF is still waiting to hear from Depart, who is addressing EPA comments on Closure plan

(8)

- Empty barrels currently stored ON NW corner
- There SINCE beginning of Operations

- Evaporator installed in 1992
- before evaporator Chem Clear of Chicago, IL would pump rinse water from barrels IN CSA
- old CSA could hold about 50 drums
- CSA not originally Meant for Storage, but inspection found one drum for More than 90 days, so considered storage area

(9)

- at time of IEPA inspection, CSA was being set up for being pumped

- 6 boxes of soil from green banded area
- boxes are 4'x4'x4'
- determined by Charles Gruntman of IEPA-Maywood to be NON-hazardous during sampling IN ~1990 inspection

- Dirt pile IN NW corner outside building also contains soil from green banded area

- soil dug from ponded area to boxes / pile. in 1989.
- Top ~~dirt~~ soil put in boxes, below that, soil was put on ~~waste~~ pile
- Boxes hold top 2" of soil
- Soil pile ≈ 30' long x 15' wide x 7' tall at peak

- Jim claims liquid ponded area was here when he started at RMF

- Few empty drums to go back to the distributor

sitting in SW corner

- Virgin acids stored just west of waiting room / bathroom

- No major clients, change week to week
- oven racks, animal cages are two main products
- in August, doing sterilizing trays for Abbotts in TX.

- pile of waste outdoors on west side - sawdust, floor sweepings

(12)

- JIM recalled it being pointed out during an inspection (1989) - claims it was removed during the inspection -- put into a drum w/ sludge for pick up
- JIM began ~~end of dec 1988, beginning of dec 1989~~ JUNE 1988
- ~~HJBC~~ worked about a week before he began excavating soil from ponded area.

- outdoor green waste pile ≈ 2, 5-gallon buckets

(13)

- The three small tanks in front of garage door were cleaning & rinse for tank cleaning tank
- tanks moved from near garage door to diked area in 1989

- cleaning tanks contain nitric acid, hydroflouric acid, and water

- old sump - hole cut in floor where middle process tank in south dike now is. Plastic tank was set in hole

(14)

- JIM claims that pit/sump was all concrete, even the floor. Tank in pit was plastic (polyeurethane).
- Water from hosed off parts would run into tank in the sump/pit.
- sump/pit was here when Jim began at RMF; he is unsure of start up date
- END of 1989 - Stopped using pit/sump
- tank removed in 1989, paved over next day

(15)

- samples collected on 2/8/90 for groundwater indicate no detectable groundwater contamination (< .05 mg/L) → samples taken by Depaul, analyzed by TEI Analytical
- NO GW MONITORING wells installed by RMF
- Depaul prepared a groundwater MONITORING plan to IEPA (8/92)
- no response from IEPA
- 4 GW MONITORING wells have been installed by IEPA
  - 1 west
  - 2 north
  - 1 east

- Soil samples taken by DePaul on 2/8/90 indicate 90 ppm and 47 ppm (analyzed by TEI Analytical
- Samples taken because of IEPA request - taken just outside of pit
- former drum area behind 5 current process tanks
  - drums held old, reusable acid from process tanks. The old acid was mixed with ½ new acid when reused in the process tanks

- These drums were present when Jim started @ RMF in 1988/89, and were removed in ~1991 when the newer process tanks were installed
- Currently there are 2 drums along east wall that hold reusable acid from the process tanks

- rate of evaporator runs about 2½ drums of rinsewater per day (24 hrs.) - that generates about ¼ barrel of ~~sludge~~ reusable acid

- reusable acid is "bucketed" out into the process tanks

- RMF received letter from IEPA on regarding a need for an air permit for "Decorative Chrome Plating Operations"
- RMF is applying for air permit, although unsure what for (application has not yet been sent).
- there is no air permit for the evaporator - Jim say one is not needed because of the air scrubber / mist collector

- NO NPDES discharge or discharge to the sanitary sewer.
- Sanitary Sewer District says RMF was above Chromium limit in 1st quarter of 1992 --
- RMF (Jim) says may be from heavy rain -- water from leaky roof possibly mixed with floor waste and ran into the floor drain
- RMF is on city water
- NO knowledge of private wells

- TOUR FACILITY -

10:45 AM

Photo 1 - facing east
- plastic tank that was formerly in pit

Photo 2 - facing ~~east~~ DBC west
- process tank (2) on map

Photo 3 - facing North
SAA - rinse water from ~~tank or pumped~~ DBC ~~from floor - often~~ DBC ~~U~~ DBC hosing off parts before they go to the nitric rinse -- rinse water only in barrel for a few days before it is pumped back into the rinse tank

Photo 4 - facing North
area between two rows of process tanks - note spillage on floor

- curb is 8" high, 4" thick

- 2 barrels in diked area contain used ~~oils~~ or rinse wate
3 empty
1 w/ water with drawer in it

(22)

photo 5 facing north
- 2 barrels of reusable acid -- IN past, whole wall was lined w/ drums of reusable acid - also standpipe
- acid is pumped from process tank into drums when weak -- it is later mixed with new acid and reused

photo 6 - facing north - wall along which drums of reusable acid used to be located

(23)

photo 7 - facing south/SE location of former pit, now filled with concrete and covered partially by a rinse tank

photo 8 - facing north
- 2nd photo of old pit area

- drums of rinse water around evaporator empty at time of VSI

photo 9 - facing east
- evaporator unit

photo 10 - facing north
- empty barrel storage area in NW corner

photo 11 - facing north
- location of former CSA

photo 12 - facing west
- cardboard boxes of soil from cleanup of green ponded liquid area

photo 13 - facing west
location of old waste pile of saw-dust, floor scrap

photo 14 - facing east
IEPA installed groundwater Monitoring well on west side of facility

photo 15 - facing northwest
- area where ponded green liquid once stood

photo 16 - facing north
- IEPA Marker where core sample was taken

photo 17 - facing west
Soil pile (from ponded liquid area - 2" - 6" of soil from liquid area)

(26)

- NO sampling done after top 6" removed

- NE corner - apparent seepage in past inspection

- photo 18 - facing west
  - crack in brick, so rinse water was leaking. Jim dug up 5" of soil and replaced with concrete
  - soil was put with sludge to be shipped out

* date inside

April 29, 1992
12" x 1½" x 2"
area

(27)

- pit - probably 6"-8" thick

- evaporator ~~stardac~~ installed 1/28/90

- 6/9/92 - IEPA looked at water in wells - noted hardly any discoloring of water

- March 1992 - wells installed by IEPA

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left facility for lunch at 12:25 pm

photo 19 - facing north facility building

(28) - return to facility @ 1:45 PM

- when tank in pit was ≈ ½ full, it was pumped into drums in old CSA

- rinse water got between concrete tank when concrete that covered lip of tank corroded away

- soil from outdoor waste pile drummed with waste ~~sludge~~ from process tanks -- taken to ChemCor of Baltimore, MD (MDD 980 555 189)

- soil from NE seepage drummed with waste from process tanks, taken to OSCO of Nashville, TN (3/11/93)

(29)

- until taken off site, soil from NE corner just kept in a drum

- Jim removed waste pile after 8/9/88 inspection

- standpipe plugged / capped around 1990

- Jim never witnessed any waste / rinse water being dumped down standpipe

- Patrick O'Brien of Chicago took videotape of tank removal in pit

(30)

- Neighbor to the east
  → Candy Manufacturer (Sluggo's)
- to the south
  → Storage units
- to the west + north
  → empty lots

- leave facility 2:10pm

Jami Cuff
7/13/93

(31)

Zion Building Inspection Dept.

- private wells in Benton Township

- All city water from Lake Michigan

Zion Water + Sewer Dept.

3113 12th street - on private well